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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

N.S. 1

EDITED BY

G. E. MOORE,

WITH THE CO-OPERATION OF PROFESSOR PRINGLE-PATTISON, PROFESSOR C. D. BROAD, AND F. C. BARTLETT, M.A.

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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY

I.—THE PHILOSOPHICAL RESEARCHES OF MEINONG (I.).

By G. Dawes Hicks.

I have undertaken to give some account in this Journal of Meinong's contributions to philosophy. It was a rash undertaking. For the task is one of peculiar difficulty. Had Meinong made any attempt to think out or develop a comprehensive metaphysical theory, it would have been comparatively easy to sketch the main features of that theory, and perhaps to indicate where it seemed exposed to attack. But his speculative genius lay not in the direction of system-building; and I suspect he distrusted the attitude of mind which system-building frequently betokens. His published work, and it is amazingly voluminous, is all of it of an extremely detailed kind; its value largely consists in its resolute thoroughness, in the rare combination it shows of unprejudiced observation with acute inference, and in the minute care with which he tried to see all round and to get to the roots of the problems he handled. Moreover, the themes he selected for treatment were almost always those at the growing-point of philosophical inquiry; he had an extraordinary facility of discerning precisely that which required to be wrestled with in order to make headway in philosophical research. As a writer he was lucid and clear; but his very persistency in tracking a subject through its ramifications gives to his mode of exposition a certain prolixity, which those who like to have their philosophy served up to them in imagery and metaphor will be ready enough to decry as dulness. Yet his intellectual honesty in describing the data with

which he was concerned, his subtlety of analysis, his keenness of criticism are sufficiently exemplified in everything he wrote.

In spite, however, of its difficulties, there is more need of such a task as has been set for me being undertaken in the case of Meinong's work than in the case of that of most philosophers. For it is true to say that the different investigations upon which he was engaged, independent of one another though at first sight they appear to be, are not in fact unrelated, and that his various lines of reflexion have principles in common which it would certainly be worth while to drag to light. I can hardly hope to succeed in doing so; but I may perhaps contrive to furnish such an outline of Meinong's ways of thinking as may be serviceable to those who have not as yet made acquaintance with his writings. Of their importance no one who is familiar with them can be in doubt; they are important as profound inquiries into the most fundamental of philosophical questions; they are important no less as illustrating the method by which philosophic truth is won.

By way of preface, I prefix a few words of biographical import. Alexius Meinong was born at Lemberg on 17th July, 1853. His family was of German extraction, and his father had settled on Polish soil on account of his professional duties. Meinong's student years were all spent in Vienna. After being six years at a private school there, he became a scholar of the academic gymnasium; and it was due in particular to two of his teachers in the latter institution that, contrary to the original plan of his parents, who had destined him for the law, and despite a strong inclination on his own part to devote himself to music, he decided in the end upon a scientific career. He entered the University in the autumn of 1870, matriculating in the Faculty of History. In the summer of 1874 he took his degree, having submitted for it a dissertation on Arnold of Brescia. From his gymnasium days he had, however, imbibed an interest in philosophy; and he chose philosophy as his *Nebenfach*, offering himself for examination in the first two of Kant's *Critiques* which, in blissful ignorance of their pitfalls, he had striven to master by his own unaided reading. The results of his criticism of Kant, animated, he tells us, by a very naïve radicalism, must, he confesses, have been primitive enough; but, without suspecting it, he had thus commenced his life's work. For a while he attended lectures on law; but early in 1875 he resolved to give himself entirely to philosophy. He sought naturally the guidance of Brentano, then at the height of his influence. That guidance was unstintingly placed at

his disposal; and Meinong never ceased to speak in the warmest terms of his indebtedness to his teacher,[1] although he had occasion to disclaim the description of himself and Ehrenfels as belonging to the Brentano school. The first of the *Hume-Studien* was the outcome of a line of investigation which Brentano proposed to him; and it served as *Habilitationsschrift* by which he became a *Privatdozent* in the Philosophical Faculty of Vienna in 1878. In that capacity he continued in Vienna four more years, during which period Höfler, Ehrenfels and Oelzelt-Newin were his pupils. He was appointed in the autumn of 1882 (when the second of the *Hume-Studien* was published) Professor extraordinarius of Philosophy at Graz; and in Graz he remained for the rest of his life, refusing repeated calls to larger fields of labour (such as Kiel in 1898 and Vienna in 1914), because it seemed to him that here he would best succeed in accomplishing the scientific work he had prescribed for himself. He started at the University in 1886, through apparatus provided by private means, experimental research in psychology; and in 1894 there was instituted in Graz the first psychological laboratory established in Austria. In the spring of 1889, Meinong was appointed Professor ordinarius; and in the autumn of that year he married. During the thirty years that followed, an extensive series of investigations occupied his activity—investigations some of which had to do with fundamental epistemological issues, others that were of a psychological nature, and others again which belonged to the field of ethics, more especially to the theory of value, to which his yearly recurring lectures on practical philosophy had, in a certain measure, afforded the stimulus. Only by degrees (scarcely, he tells us, before 1900) did he come to realise that in all these researches he had been moving in a direction which was new and of vital philosophical significance. To the bulky volume that was issued in 1904 in celebration of the tenth anniversary of the Graz psychological laboratory, Meinong contributed an introductory essay in which he definitely formulated, and endeavoured to determine the scope of, what seemed to him entitled to be called a distinct department of philosophical science, clearly demarcated from either metaphysics, or epistemology, or logic, or psychology; and to it he gave the name of *Gegenstandstheorie*. After

[1] For instance, in the last of his publications, he wrote: "Was etwa das Leben nicht mehr zu schlichten vermochte, das hat der Tod geschlichtet, und vor dem Auge meiner Erinnerung steht als unverlierbarer Besitz, wie einst, die Lichtgestalt meines verehrten Lehrers in durchgeistigter Schönheit, übergoldet durch den Sonnenglanz seiner und meiner Jugend".

1904, much of his strength was concentrated upon what he regarded as problems of this new field of inquiry, and upon urging its claims to recognition. In 1914, he was elected a member of the Austrian *Academie der Wissenschaften* (he had been a corresponding member since 1906); and to its *Proceedings* several of his latest papers were contributed.[1] He died at the age of sixty-seven on 27th November, 1920, of an ailment which for months he had patiently borne, continuing his academic and scientific labours until a few days from the end.

I.

One of Meinong's early writings[2] was partly devoted to a discussion of the nature and aims of philosophical inquiry and the position of philosophy in respect to the other sciences. Without unnatural limitation, he had there contended, philosophy cannot be taken to denote a single comprehensive science. It indicates rather a whole group of sciences, linked together by a common characteristic. And the characteristic in question is, he urged, that of being concerned, either exclusively or at least in certain essential respects, with inner experiences. Not only psychology itself, but likewise epistemology and logic, ethics and æsthetics, can readily be brought under this point of view, embarrassing though it may be to find an exact formula for the connectedness which is thus implied. Even metaphysics, in virtue of the very generality of its subject-matter, is constrained to bring non-psychical into relationship with psychical facts, in order to maintain an independent position alongside of the natural sciences.

It might seem, then, as though Meinong were here assigning to psychology a dominant position among the parts of philosophy as a whole; and so in a manner he was. Any attempt to proceed in philosophical reflexion by leaving out of account the consideration of psychical processes is in itself, he argued, a sufficiently convincing demonstration of the inherent unnaturalness of such an endeavour, and no metaphysic elaborated without regard to psychological research

[1] Apart from the scattered papers now collected together in the *Gesammelte Abhandlungen* (of which at the time of writing two out of the three contemplated volumes have appeared), the following are Meinong's chief publications: *Psychologisch-ethische Untersuchungen zur Werttheorie* (1894); *Ueber Annahmen* (1902; a second and greatly altered edition in 1910); *Ueber die Erfahrungsgrundlagen unseres Wissens* (1906); *Ueber Möglichkeit und Wahrscheinlichkeit* (1915).

[2] *Ueber Philosophische Wissenschaft und ihre Propädeutik*, 1885.

and its results can be expected to stand.[1] Such was his contention to the last. But, as time went on, he came to draw a very sharp line of demarcation between psychology and psychologism, and to express himself as virtually in accord with Husserl's well-known polemic against the latter in the *Logische Untersuchungen*. Within the circle of a certain set of problems, it is, Meinong declared, sufficiently easy to see what is meant by the term psychologism; it simply means psychological methods of treatment in the wrong place. Since knowing is a mode of experience (*ein Erlebnis*), epistemology cannot wholly dispense with psychological methods. Yet over against the act of knowing stands the known; knowledge, in other words, has a double-sided aspect; and whoever pursues an epistemological inquiry as though there were only the psychical aspect of knowledge, or persists in forcing the other aspect under the point of view of psychical event or occurrence, cannot escape the reproach which the term psychologism carries with it.

Nevertheless, I am inclined to believe that Meinong exposed himself to not a little misunderstanding by adhering as he did throughout to that early contention of his that in psychology is to be discerned the thread, so to speak, which binds the different parts of philosophy into such whole as they constitute. For he scarcely meant to imply more by the contention than that in the notion of *knowledge* is to be found the link of connexion between the several branches of philosophy, theoretical or practical. In other words, what, in truth, he was saying was that there is not one group of objects specifically entitled to be called the subject-matter of philosophy; but that any part or the whole of what is vaguely described as the field of experience may be handled philosophically if treated from the point of view of its relation to the human thinking subject. What light can it throw on the relations in which the human mind stands to the surrounding reality?—such was the fundamental question which philosophy has addressed to it. And, then, the special branches of philosophy would seem to be determined by the main differences of a general kind which disclose themselves in those relations. These differences would, for example, be not inappropriately classified under the three heads: (*a*) cognitive, (*b*) practical, and (*c*) æsthetic. So conceived, it is

[1] On the other hand, he was equally strenuous in maintaining that the psychology, be it never so experimental, which ruthlessly brushes epistemological and other philosophical considerations aside is bound to become entangled in crudities and absurdities, which, in the long run, will mean its undoing.

obvious that the treatment of knowledge in all its aspects must form the central portion of philosophical science. For it is only in and through the process of knowing that the human mind has a place at all in the scheme of existence; and, although the practical and æsthetic activities are distinguishable from the knowing activity, they nevertheless imply the latter as an essential condition of their possibility. Clearly, the investigation of knowledge divides into two diverging lines of inquiry, according as it turns upon the question as to the validity of knowledge or upon the question as to the way in which knowing comes forward as a natural process in the life of the individual mind. Furthermore, inasmuch as in both these paths of inquiry the antithesis between the subjective and the objective presents itself, yielding, in the one case, the problem of what meanwhile may be described as that of the 'correspondence' of our thinking with reality, and, in the other case, that of the way in which our mental processes are occasioned or influenced by external conditions, the final issue is bound to be raised which has been traditionally designated metaphysical. That issue may perhaps be expressed thus: What conception of real fact are we led to form in order to render intelligible, on the one hand, the attainment of truth by human thinking, and, on the other hand, the conjoint co-operation of mental and external conditions in the natural world?

Such, at any rate, in broad outline, is what I take to have been the essence of Meinong's view in respect to the function and scope of the philosophical sciences. Most of his publications between the years 1882 and 1904 had to do with questions which could not be exhaustively dealt with either from the point of view of psychology alone or from that of epistemology alone. And Meinong came gradually to see how both modes of investigation could be combined, and combined without committing the blunder, which can only lead to hopeless confusion, of prematurely mixing up the two methods and of drawing upon the one while ostensibly engaged in carrying on an inquiry under the other.

II.

It was a fortunate circumstance that Meinong had been induced to devote himself, at the beginning of his career, to a thorough study of Hume's theory of knowledge. The outcome of his patient examination of that theory was not only a valuable piece of genuine philosophical criticism; it was also a clear discernment of the exact points in regard to which

the adequacy of the empirical doctrine could best be tested. The *Hume-Studien* disclose, in fact, the way in which the crucial problems of knowledge originally shaped themselves for Meinong; it is, therefore, advisable to look at these *Studien* somewhat in detail.

The first of them (published in 1877) is concerned with abstract ideas and the process of generalising. The treatment of the matter by Berkeley and Hume is submitted to a scrutiny far more searching and penetrating than that which T. H. Green, in his elaborate *Introduction*, had brought to bear. Attention is drawn, for example, to the totally different senses in which Berkeley employs the term "sign" when dealing with ideas and words respectively and to the fact that he leaves entirely unanswered the important question, how a general *name* is related to a general *notion*. Berkeley, it is argued, ought to have seen that he had not disposed of abstract ideas by disposing of Locke's account of their mode of origin; for the very concessions he makes, obviously inconsequences in his exposition as it stands, would, if they had been followed up, have forced him to that conclusion. Indeed, in more than one place, Berkeley, it is pointed out, was on the verge of a psychological theory that could have been substituted for Locke's, in so far as he laid stress upon the consideration that in observing an individual fact it lies within our power to concentrate *attention* upon certain of its characteristics, and that thus its remaining characteristics are disregarded. Hume, it is shown, completely misconceived what he described as "one of the greatest and most valuable discoveries" made in his time "in the republic of letters". But the nominalistic view, which he erroneously took to be Berkeley's, *was* the view which he himself tried to put "beyond all doubt and controversy"; and, by examining in turn each of the negative and positive arguments employed in the *Treatise* for this purpose, Meinong exhibits, in a convincing manner, the failure of that attempt.

As regards the negative arguments, the very formulation of the thesis they are advanced to support is, Meinong bids us observe, in itself extraordinary. While Hume's intention is admittedly to deny *all* abstraction, what he actually tries to prove is that "the mind cannot form any notion of quantity or quality without forming a precise notion of degrees of each," as though it were not evident, on the face of it, how many of the cases usually taken to be cases of abstraction are thereby left out of account. But, waiving this objection, no one of the three arguments by which the thesis was to be put beyond the range of controversy will bear

examination. Take, for instance, the third of them. It will be granted, Hume avers, that everything in nature is individual, and that it would be absurd to suppose a really existtent triangle which was without definite dimensions. And if this be absurd in reality, it must also be absurd in idea. Again, "to form the idea of an object, and to form an idea simply, is the same thing." If, then, it be impossible to form an idea of an object that is not possessed of definite quantitative and qualitative degree, there must be an equal impossibility of forming an idea, that is not limited in both these particulars. Meinong has little trouble in convicting this argument of either a formal or a material fallacy; a formal fallacy, if by 'everything' be meant *jedes Ding*, for then the word 'object' is equivocal, since it is used both for an existent thing and for a content of presentation, a material fallacy, if by 'everything' be meant *alles*, for then it is false that everything in nature is individual. Furthermore, granted that it is absurd to suppose there can be a thing in nature without its definite degree of quality and quantity, granted that each thing must accordingly be perceived as in this respect a determinate thing, does it, then, in the least follow that each idea of that thing must necessarily represent all these determinations? An assumption of that sort would be no less ridiculous than to maintain that because an individual existent has an indefinitely large number of characteristics, the content of the notion of that existent must be indefinitely great. In short, an idea of an individual thing is far from being an individual idea; and yet except on the ground that the idea of an individual thing is an individual idea, no inference can be drawn from the individuality of things to the individuality of ideas.

The positive line of argument by which Hume sought to come to the assistance of what he took to be Berkeley's theory turns out, in Meinong's hands, to be no less unsatisfactory. First of all, he would have us notice the singular want of perspicuity characterising Hume's exposition. The problem is to explain how a particular idea attains in our reasoning an application such as it would have were it universal. The explanation offered is that we apply the same name to similar objects; and, when that custom has established itself, the hearing of the name revives the idea of one of these objects, the one which happens casually to make its appearance most readily. Yet what about the other ideas, likewise associated with the name? "They are," Hume replies "not really and in fact present to the mind, but only in power." But, asks Meinong, since when? Hume would appear to say, since

the act of mentioning the name. A disposition to revive the ideas in question must, however, surely have been previously there, if eventually, through aid of the word, they are reproducible. The situation becomes the more perplexing when Hume goes on to assert that the word raises up besides the idea a "certain custom," and that this custom produces any other individual idea, for which we may have occasion. Are we, then, here to understand by "custom" a permanent indispensable pre-condition of the last mentioned idea, and by "occasion" the immediate cause of its appearance? If so, the whole theory stands or falls with what can be made out with respect to this "occasion". Nevertheless, Hume vouchsafes no information as to whether such an "occasion" must always be present whenever we hear that word, nor is it easy to see wherein the necessity of its presence could be supposed to lie, although in its absence there can admittedly be no question of generality. Hume's lack of precision just where precision is necessary renders it difficult to come to close quarters with the theory itself; but the moment we try to do so it becomes manifest, Meinong urges, how little mere association without abstraction is able to achieve. We have before us, let us say, a round piece of paper or a mill-stone (seeing that, *ex hypothesi*, we cannot think of a circle *in abstracto*), and we call this "shape". Now, it can safely be affirmed that it would never occur to us, so soon as we happened to see a square corn-field, to call to mind that "shape" and to give the name "shape" likewise to the field. No doubt, if we were in a position to think of shape *in abstracto*, all would be plain sailing, but this is precisely what Hume is concerned to deny. Naturally, the difficulty becomes the more glaring the greater the generality attaching to the name. Moreover, as Hume himself points out, the same thing may be called by a great number of different names—*e.g.*, mill-stone, a round thing, a heavy thing, a material thing, etc. Yet he has offered no explanation of how, under such unfavourable circumstances, it comes about that even the slightest appreciable association between word and idea could be formed. Once more, and assuming meanwhile that objections such as the foregoing have been surmounted, no sooner is the effort made to see how 'general ideas,' formed in the manner supposed, function *in propositions* than the theory breaks down hopelessly. A proposition, such as "wolves are mammals," it would have to be said, is in the first instance an assertion about words; so far as actual things are concerned, the statement could only express the result of a perfectly general inference based on a similarity which association with the word "mammal" presupposed.

But, since the same objects are also associated with many other words—*e.g.*, organic being—nothing would be gained by the knowledge of that similarity. Finally, if account be taken of all that is usually included under the head of abstraction, the inadequacy of the doctrine becomes strikingly apparent. We speak often enough of family traits, of natural types, of a literary style, and so forth; and, in doing so, are referring to characteristics which several individuals have in common. The ideas of such attributes appear, therefore, as general notions, in regard to which scarcely any one would dispute that the common feature must first be recognised as such before a name can be given to it. Here, then, quite certainly the name acquires its generality through the notion, and not the notion through the name.

The two fundamental errors that, in Meinong's opinion, vitiate Hume's theory are (*a*) his failure to take account of the content or intension of a concept, and (*b*) his use of the doctrine of association to explain the way in which the concept acquires its extension or denotation. In ordinary usage, the terms general and particular have reference to the extension, and the terms abstract and concrete to the intension, of a concept. A concept that is or can be applied to many objects is general; a concept that is obtained by an act of abstraction is abstract. Every concrete object is an individual object. But the presentation of a concrete object includes only such characteristics as can be apprehended by sense at any one moment; consequently individual objects are known, for the most part, in a form that is more or less abstract. No doubt, it is as concrete that every empirical datum comes at first into consciousness; and, in so far, concrete data furnish the basis of knowledge. Knowledge, however, is primarily concerned not with presentations but with their objects. In knowing, we seek to liberate that which we take to be peculiar to the object from the contingent features introduced into it by the act of apprehending. So that almost always just that which makes the presentation concrete will fall away from it. It follows, therefore, so Meinong argues, that while all general notions are abstract, not all abstract notions are general. In respect to the question whether a concept is universal or particular, the number of attributes constituting its content is quite immaterial; not so, however, the quality of those attributes, because it will be according as, in view of such quality, the presence of individual objects, corresponding to the concept in question, be conceived as mathematically or physically impossible or otherwise, that the concept must be held to be individual or

general. On the other hand, however, in respect to the question whether a universal concept is more or less universal, the amount of content may, under certain circumstances, be a relevant consideration, and the quality of the content always is; but neither from the one nor the other nor from both *alone* can any answer be given to the question, because, in reference to extension, we are concerned with a *relation*, while the content gives us only one term of the relation, and the second term must be supplied by experience. Meinong, insists, then, that the extension is not, like the intension, something definitely fixed or self-evident; but that, on the contrary, the real extension of a notion is no less independent of our knowledge than is any fact of the external world. Consequently, to suppose that between general and individual idea an association must first be contracted in order that the latter should be subsumed under the former is, for this very reason, absolutely precluded. In fine, Meinong's argument is directed all through to bringing out what he conceives to be the truth that not association but the self-conscious activity of attention is the main function involved in abstraction and generalisation.

The second of the *Hume-Studien* (published, as already noted, in 1882), deals with the theory of relations, and is much more constructive than the first had been; Meinong here elaborates a position of his own that, in view of his subsequent work, deserves special notice. His method, however, is still the same as before. He still proceeds on the basis of a critical discussion of what he finds in the writings of Locke, Hume, and the later empirical thinkers. As he had formerly refused to recognise in Hume's nominalism a legitimate development of Berkeley's doctrine, so here he is inclined to defend Locke's common-sense treatment of the subject under consideration against Hume's psychical atomism. But he does not fall into Kant's mistake of supposing it was only in reference to cause and effect that Hume had raised the issue of necessary connexion; indeed, it is not so much upon Hume's handling of causality as upon his handling of the more elementary relations of likeness and difference that Meinong's scrutiny is concentrated. And he maintains that Hume's whole theoretical philosophy is so essentially built upon his *Relationslehre* that an exposition of the latter, with any claim to completeness, would scarcely be justified in leaving a single portion of the former out of account.

At the outset, Meinong resists the view (the view of Mill and Spencer, but derived ultimately from Hume) that a relation, such as that of likeness, is explicable from the mere presence

to consciousness of two or more presentations, in this case like or resembling presentations. He takes his stand at once on the principle laid down by Lotze. "Every comparison, and in general every relation between two elements, presupposes," so Lotze had asserted, "that both points of relation remain separate, and that an ideating activity passes over from the one to the other, and at the same time becomes conscious of the alteration which it has experienced in this transition. We exercise such an activity when, for example, we compare red and blue, and thereby there ensues for us the new presentation of a qualitative similarity, which we ascribe to both."[1] Meinong points out that the existence of an activity of the kind indicated by Lotze had already been virtually recognised by Locke, when he described relations as complex ideas resulting from an act of comparison, although Locke had left the nature of the act which he thus specified undetermined. So much being granted, there is, Meinong argues, already determined what alone, in any intelligible sense, can be called the *fundamentum relationis* of the activity in question; clearly it can be no other than the compared presentations themselves. No doubt, what, as a rule, we have given are not single but complex presentations, complexes of presented attributes. If two dice, one red and the other blue, be compared and found to be different, the comparison, in the strict sense, has reference not to the shape but to the colour; and, accordingly, only the actually compared features ought to be spoken of as *fundamenta*. Yet, in such cases, we are wont to say not merely that the two colours but that the two dice have been compared, with the qualification, perhaps, "in respect to their colour". And in this usage may be discerned what Locke had in mind when he insisted that in a relation there is always requisite, on the one hand, the things to be compared, and, on the other hand, the "occasion" for such comparison. In the example just used, the dice are the things, the colour the "occasion". Evidently, then, there can be no relation without a *fundamentum*, or more precisely two *fundamenta*. These may themselves be relations, for relations can, of course, be compared; but we cannot go on making relations the *fundamenta* of relations indefinitely; ultimately every relation has for its *fundamenta* presentations which are not relations, for otherwise there would be a comparison in which there was nothing compared. Hume's initial error, an error that ruined his classification of relations, consisted in his confusing the notion of *fundamentum* with that of relation.

[1] *Grundzüge der Psychologie*, p. 23.

Two chief classes of relations are distinguished by Meinong —relations of comparison (*Vergleichungsrelationen*) and relations of compatibility (*Verträglichkeitsrelationen*). (*a*) Under the first class are included relations of likeness (*Gleichheit*) and of unlikeness or difference (*Verschiedenheit*). And here the view (*e.g.*, Mill's) that likeness is only a special case of resemblance (*Aehnlichkeit*) is decisively rejected. Resemblance, it is argued, may be present in all conceivable gradations, but in likeness there is no gradation—what is like is completely like, and what is not completely like is not like—so that it would be unnatural to bring the cases of likeness and certain cases of unlikeness under the head of resemblance, and the remaining cases of unlikeness under the head of difference. Not only so; it would be difficult to imagine how, through determination of the notion of resemblance, the notion of likeness could have arisen. And finally, the usage of language is altogether adverse to the view in question, for in speaking of similarity one is almost invariably conscious of difference as being likewise involved. Resemblance, then, is always a special case of difference; in so far as partial agreement or likeness is essential to resemblance, it is still only likeness *of elements*, while the resemblance is asserted of the whole. Spatial and temporal relations fall within this class. The *fundamenta* of the former are like and unlike space-determinations within the homogeneous space-continuum, and of the latter time-determinations within the homogeneous time-continuum. (*b*) Meinong was led to constitute relations of compatibility into a class by themselves through consideration of what Hume had meant by 'contrariety' and Locke, in his familiar definition of knowledge, by 'repugnancy'. The notions compatibility and incompatibility are not, he maintains, constituted after the manner of the notions likeness and difference. The latter admit of no definition, and can only be explained by means of examples; the former do seem to admit of a kind of definition —compatible is what can subsist together, incompatible what cannot. In the long run, the question of compatibility can only be raised with regard to attributes of like time- and space-determinations. Here we seem to be face to face with an ultimate fact, and a fact which belongs not to the province of presentation but to that of judgment. When it is said, for example, that the 'round' and the 'square' cannot be simultaneously in the same place, there is no new presented content introduced by the phrase 'cannot'; it only makes the statement an expression of a negative judgment, and this judgment carries with it that peculiar, indescrib-

able, and familiar characteristic which it has long been customary to describe as evidence. It would seem, therefore, that relations of compatibility may be said, in a certain sense, to be secondary formations, in so far as they are based upon a special case of relations of comparison—namely, on the case of like space- and time-determinations. There is, however, a further feature to be noticed. The two possibilities that come forward in regard to this second class of relations do not stand independently side by side as likeness and unlikeness do. The one can only be characterised as the negation of the other; and, moreover, it is compatibility that is the negation of incompatibility and not *vice versa;* for compatibility seems to imply no more than that, in a particular instance, one has before him a case where evidence for an incompatibility of the kind indicated is wanting. If it be asked why such different things as cases of comparison and of compatibility should be grouped together under the title of relations between presented objects, Meinong would here justify his doing so by pointing in the first instance to the part played by the presented objects, which seemed to him perfectly analogous in the two cases. For these objects, the *fundamenta,* are invariably the basis upon which rest, in the one case, the presentation of likeness or difference, and the evident affirmation which attaches itself thereto; and, in the other case, the evident negation. So that incompatibility and likeness may each be said to be a relation between presented attributes.[1]

Meinong does not claim that his two-fold classification of relations is an exhaustive classification, although it does, he thinks, cover *all* the seven kinds distinguished by Hume in the *Treatise.* There are, however, relations *toto genere* distinct from any that were considered either by Hume or Locke. For instance, in quite a legitimate sense, one may speak of a relation between the act of presenting (*vorstellen*) and its content, where we have to do not with presented contents alone but also with the act in and through which those contents have their being. And this relation is not the product of a new activity; on the contrary, in the apprehension of it we seem to be no less passive than we seem to be in regard to the data described as *fundamenta.* So, too,

[1] This contention was discarded in the later writings. In them, Meinong maintains that relations of compatibility are based upon Objectives (see below, p. 26 *sqq.*); and that, consequently, they are relations not between presented attributes but between objects such as can only be apprehended through judgments or assumptions (*cf.*, *e.g.*, *Ueber Annahmen*, 2te Aufl., p. 215 *sqq.*).

the relations between the elements of a composite presentation are not in the least analogous to the relations between the presented parts of a physical object. These, then, are instances of what Meinong here calls "real relations"—real, because, seeing they are not outcomes of a new activity, they must really belong to the data, otherwise there could be no awareness of them. At the same time, 'real,' in this context, must not be understood as referring to anything extra-psychical, for obviously the relations in question are between psychical data, and are directly accessible to us in a way in which relations outside the circle of psychical phenomena never can be. As contrasted with these "real relations," the relations previously considered may be called "ideal relations"—ideal, because they are the products of a specific psychical activity, and do not belong to the data apart from such activity. But now, within the sphere of "ideal relations" a further line of demarcation requires to be drawn. Hume distinguished between relations that depend entirely on the ideas compared and those that may be changed without any change in the ideas. Through his failure clearly to recognise the significance of *fundamenta* for a relation, Hume was led wrongly to include contiguity and distance under relations of the last mentioned kind. Yet his distinction itself is an important one and coincides with the distinction upon which Meinong thinks stress should be laid between primary and secondary relations. The primary relations, those of comparison and of compatibility, are obtained beyond question by an act of discrimination directed upon the given *fundamenta*. There are, however, secondary relations, combinations of special cases of primary ones, where relative determinations without *fundamenta* come more or less to the front. With respect to secondary relations the data accessible to us are not sufficient, and if we connect the assertion of such relations with these data, we must have grounds for doing so outside the data themselves. The two chief secondary or derivative relations are those of causation and identity, both of which have been acquired originally as the result of practical needs. Meinong's analysis of the causal relation is virtually in agreement with Mill's. He lays repeated emphasis, however, upon the consideration that with respect to causality (and the same is true with respect to identity) it is impossible to confine attention to presentations; there is always involved a reference to external things, to real existents. To ascribe causality to mere presentations would, he says, be like ascribing a true biography to a prince in a fairy tale. The relation of causality is invariably

"carried over" into the external world. And he tries to show that there is nothing inexplicable in this reference to real existents. When one says, for example, of two feelings, that prior to the act of comparison by which they are judged to be different they were in fact different, there has already been such a "carrying over" of the ideal relation of difference from presented contents to existent entities. At the same time, primary relations may be said to be "pure relations" in the sense that an *Uebertragung* of this kind is not essential for their being as relations, whereas it is essential for the being of secondary or "empirical" relations. The pure relations are, therefore, *a priori*, and the judgments asserting them are *a priori* judgments. But no judgment about empirical relations can rest on a merely *a priori* basis; and just as little can a judgment about pure relations do so when it has reference not merely to presented contents but also to existent fact. It is further clear that none but "ideal relations" can be "carried over" into the domain of extra-psychical reality.

III.

The foundation of Meinong's subsequent work is laid in these early *Studies*. In them almost all the problems to which later he devoted such unwearied intellectual industry are, in one form or another, indicated, if not distinctly formulated. Not a few of the positions which were here maintained came, it is true, in the course of time, to be abandoned, and others to be radically revised; and the reasons that led to such changes often throw the clearest light upon the views that were finally adopted. I shall have something to say immediately upon some of the principal changes; meanwhile I want to refer to one definite result which these investigations yielded him, and from which he found no occasion to deviate.

In his own way, Meinong had reached the principle which may not inappropriately be said to be the starting-point of the Kantian theory,—the principle, namely, that knowledge involves a unique antithesis between knowing and the known, and that any attempt, such as Hume had made, to dispense with the former term of the antithesis must inevitably prove futile and abortive. In other words, through grappling with the crucial questions which the work of Hume and Hume's followers had thrust upon him, Meinong came to see the necessity of insisting upon the consideration that an object known never can be identical with any act which

is a knowing of it. And when once he had convinced himself that all knowledge involves recognition of relatedness among the parts of what is known, the existence of cognitive acts, as distinct from what Hume had called "impressions" and "ideas," seemed to him to be indisputably established. Let me try to illustrate his position in this respect. If it be said that the two presentations *A* and *B*, having occurred, somehow give rise to the new idea *C*—the idea, namely, of their likeness or difference, such language only conceals the want of explanation in what is said. For there must obviously be some process, some operation of the mind, through which the production of *C* has come about. *A*, it is supposed, may and does occur separately, *B* occurs separately. What is it, then, that takes place when *A* and *B* are held together so as to admit of what Hume himself had vaguely called "comparison"? Now it is possible—I think it is certain—that in stating the case in this way one is conceding too much to the doctrine one is opposing, and I only do so in order not to go beyond what Meinong himself would have said. But the point is that even on the assumption that isolated contents, presentations, are thus given, the inference is irresistible that the simultaneous presence of these contents, their peculiarities, their changes, and so on, furnish a new set of conditions in response to which an inner activity of the mind must have taken place, if so-called ideas of relation forthwith make their appearance. In so far, Meinong was but reiterating Lotze's well-known contention; and in this particular reference, I do not know that he ever advanced any considerable way from Lotze's position. He did not, I mean, ever call in question the view of presentations as so many separately given units, or ask himself whether the separateness, the singleness, the distinctiveness, which presentations, we will say, come to have may not be due to that very activity which he took to be involved in the comparison of them and in discerning their relations. Had he done so, not a few of the obscurities that beset, as we shall see, even his mature view of cognition would, I believe, have been avoided, and he would have emerged completely from the subjectivism of his early days.

I pass now to consider the two main directions in which Meinong was led to see that the view of knowledge he had hitherto been taking required modification. These are not, in fact, disconnected; so soon as the one advance had been made, it was well-nigh certain that the other would follow.

(*a*) In the *Hume-Studien* no distinction had as yet been recognised between the 'content' of an act of apprehension

and the 'object' (*Gegenstand*) of that act. Throughout, the former term had been employed as equivalent to the latter; and the act of apprehending had frequently been spoken of as being 'directed upon' the content. I think it likely that Meinong was materially influenced in this regard by an exceedingly acute piece of psychological analysis by Twardowski, which was published in 1894.[1] With admirable lucidity, Twardowski pointed to the ambiguity that attaches to the term *Vorgestelltes*—an ambiguity in its way no less pronounced than that which admittedly attached to the term *Vorstellung*. An object may be said to be 'presented' in the sense that, in addition to the many relations in which that object stands to other objects, it also stands in a definite relation to a cognising subject. And, in this sense, a 'presented object' is a veritable object, just in the same way as an extended object or a lost object is one. But, on the other hand, by 'presented object' may be meant what is a decided contrast to a veritable object—namely, a 'mental picture' of an object—and then it is no longer a veritable object, is no longer, in fact, an object at all. That which is presented *in* a presentation is its content; that which is presented *through* or *by means of* a presentation is its object—so Twardowski tried to bring out the contrast. In the paper (published in 1899),[2] in which Meinong himself first definitely insisted on the importance of the distinction, Twardowski's little book is specially alluded to and some of its illustrations are used. The considerations that had weighed with Meinong were, he tells us, such as the following. Nothing is more common than to represent (*vorstellen*) or to think of something which does not exist. We may think of something that is contradictory, a round square, for example, or of something that does not happen to exist as a matter of fact, a golden mountain, say, or of something which in virtue of its nature cannot exist (likeness or difference is an instance), or of something which has existed or will exist but does not exist now. Nevertheless, in all these cases a *Vorstellung* exists and exists in the present. Now, argues Meinong, no unprejudiced person would wish to maintain that the *Vorstellung* exists whilst its content does not. That, however, is not the whole story. 'Content' and 'object' differ not only in respect to existence but in respect to their nature or character. That which is physical can be presented, but the content of a psychical act can only be psychical; so, too, qualities such as blue, warm,

[1] *Zur Lehre vom Inhalt und Gegenstand der Vorstellungen*, Wien, 1894.
[2] *Ueber Gegenstände höherer Ordnung*, § 2, *G. A.*, vol. ii., p. 379 *sqq.*

heavy, can be presented, but neither the *Vorstellung* nor its content by which these qualities are presented is blue or warm or heavy; attributes of this sort evince themselves at once as totally inapplicable to the contents of mental acts. As regards the relation of the mental act to its content, the view which Meinong came to hold appears to have been that they are inseparable but distinguishable constituents of one existent fact or event. Whether it be a presentation (say) of a steeple or of a causal relation, in each case an act of presenting is involved, and *quâ* act these presentations resemble one another. On the other hand, in so far as the presentations are presentations of different objects, they do not resemble one another. And that wherein presentations of different objects are unlike one another, notwithstanding the circumstance that as acts they are not unlike, is their content; such content, no less than the act, being in each case a psychical existent in the present, whereas the object presented by means of it may be non-existent, not in the present, not psychical.

"The chief argument *against* contents," Mr. Russell once said, "is the difficulty of discovering them introspectively";[1] and it seems often to be supposed that whoever speaks of the content of a mental state is speaking of something purely hypothetical, of which there can be no direct experience. But, in Meinong's sense of the term 'content,' it would be nearer the truth to say that 'contents' are the only things which we do discover introspectively. For mental states can become known to us introspectively not as mere bare states or processes, but only as *specific* states,—the awareness of a blue colour, for example, as contrasted with the awareness of a pain or the awareness of a want. And if it be contended that the common element, awareness, can, in all such cases, be distinguished from the specific elements, the reply is, "no doubt it can; but only in the way in which the common characteristic 'human' can be distinguished from the more specific elements that belong to particular individual men—that is, by an act of deliberate abstraction." Now, whatever else it is, an act of introspection is certainly not an act of deliberate abstraction; and whoever is on the search for mental states apart from their contents, or for 'contents' apart from the states whose contents they are, may well find that of either or both he can find no trace.[2] That, however,

[1] *Monist*, vol. xxiv., 1914, p. 452.

[2] As an interesting illustration, it seems worth while to mention that, after having for a long time been assured of the existence of 'mental acts' (*cf.*, *e.g.*, *Problems of Phil.*, p. 65) and altogether sceptical of 'contents,'

is due to the fact that he has been looking for something which no one ever supposed to be there.

(*b*) Throughout the *Hume-Studien*, Meinong had evidently been proceeding on the assumption that relations must be regarded as products of mental activity. They might indeed be thought of as 'carried over' into the physical world; but their essentially subjective character was not thereby called in question. It is in the article which appeared in 1891[1] on Ehrenfels' view of *Gestaltqualitäten* that Meinong is to be seen for the first time freeing himself from this assumption. In that article he acknowledges that he had himself fallen into the 'psychologist's fallacy' of thinking that, because a psychical act is requisite for the apprehension of relations, it is necessary that reflexion should be directed on psychical states in order that relations should be presented. But he had now come to see that from an empirical point of view the attempt to conceive the presentation of a relation (such as that between a colour and extension) as based upon the inner perception of an act of comparison instead of upon the compared elements themselves is wholly unnatural and contrary to fact. More particularly is the futility of such an *Umweg* apparent when it is pursued with respect to relations of compatibility. To suppose, in the case of the round square, that it is not 'round' and 'square' but the 'presentation of the round' and the 'presentation of the square' which are judged to be incompatible is surely perverse and non-sensical. No doubt, under certain conditions, these presentations may be judged to be incompatible; but 'round' and 'square' are found to be incompatible under the presupposition of like space- and time-determinations, whereas, to show that the corresponding presentations are incompatible, account would have to be taken of *their* mode of connexion. In the book that was published in 1907, in defence of the *Gegenstandstheorie*,[2] Meinong's rejection of the doctrine in question is still more emphatic. The most radical form of the subjectivist interpretation of the relations of likeness and difference would be, he thinks, that which took the former to *be* the possibility of confusing one thing with another, and the latter to *be* the absence of that possibility. Now, it may be quite true that likeness does really *indicate* the possibility of such

Mr. Russell is now persuaded of the existence of 'contents,' at least in the case of memory and thought, and cannot discover anything corresponding to acts (*cf. Analysis of Mind*, pp. 17-18 and 20-21.)

[1] *Zur Psychologie der Komplexionen und Relationen, G. A.*, i., p. 281 *sqq.*

[2] *Ueber die Stellung der Gegenstandstheorie im System der Wissenschaften*, pp. 143-145.

confusion; but little consideration is required to see that likeness only indicates and *is* not this possibility. In point of fact, one sees this neither better nor otherwise than one sees that a water-cart is not a mountain-tarn, or anything else that is obvious. And the best proof that likeness is not identical with 'to find like' is simply what a direct inspection of the two things yields. But an indirect proof can easily be provided by the reflexion that red and orange (say) are still like one another when they are not being compared. The argument is carried further in the volume, published in 1906, on the empirical bases of knowledge,[1] where it is contended that relations possess not only validity for what are there designated 'pure objects' but are transferable from the phenomenal to the real. While, in reference to our apprehension of relations, the influence of subjectivity need not be disputed, yet, it is argued, what we, as we are now constituted, are capable of knowing *a priori* is in no way rendered dubious through such subjectivity. We are justified, therefore, in asserting that things in themselves *are* like or unlike, etc., on precisely the same grounds as we are justified in asserting that colours are.

IV.

The two steps to which I have been referring having once been taken, the road to the elaboration of a *Gegenstandstheorie* was a fairly straight one. The next stage of Meinong's advance towards it consisted in his coming to recognise a class of objects which he called "objects of higher order,"[2] a conception, now sufficiently familiar, which was in fact only a further working out of the position that relations are objective in character. Objects of this class were found to be characterised by a want of independence, by a sort of incompleteness, such, for example, as attaches to the object 'difference,' if the attempt be made to isolate it from the differing terms. These objects are built, so to speak, upon other objects as their indispensable conditions, the latter being the *inferiora* of the former, and the former the *superiora* of the latter. The class of objects in question comprises not only relations but also complexes; and, in the case of complexes, the constituents, as in this sense analogous to the terms of a relation, play the part of *inferiora*. But a complex is more than a

[1] *Ueber die Erfahrungsgrundlagen unseres Wissens*, § 21 *sqq.*

[2] *Ueber Gegenstände höherer Ordnung*, *G. A.*, ii., p. 377 *sqq.* The phrase was not, of course, a new one. Meinong points out that Fechner had previously used it. But Lotze also spoke of *Vorstellungen* of higher order (*cf. Grundzüge der Psychologie*, iii., § 2).

collection of its constituents; it is not composed *merely* of a relation *and* its terms, for the terms in being related by the relation are at the same time related to it; and, although this involves a regress, the regress is not a vicious one, and so creates no difficulty.

The monograph just cited, published in 1899, may not inappropriately be said to be a preliminary survey of the ground which Meinong spent the last twenty years of his life in exploring. The preliminary survey was, however, sufficient to convince him of the enormous extent of the field. By 'metaphysics' had usually been understood a comprehensive science having for its aim to form a conception of the nature and ultimate ground of the universe; and numerous as the deceptive hopes that have been and are associated with the name may be, it is our intellectual shortcoming and not the idea of such a science upon which the blame for the deception must rest. Yet, in spite of the universality of its scope, metaphysics falls far short of being a science of objects. With the whole of what exists it has, indeed, to do. But the whole of what exists, including what has existed and will exist, is infinitesimal when compared with the whole of the objects of knowledge; and the fact that this has been so easily lost sight of is due, so Meinong avers, to that "prejudice in favour of the real" which has driven us to the extravagance of supposing that the non-real is something too trivial with which to concern ourselves. How absurd this prejudice is Meinong's preliminary survey had already made clear to him. Among the objects of higher order, he had discovered a great sub-division of "ideal objects"—objects which, to use his phraseology, subsist (*bestehen*), and many of which are of tremendous moment for what exists, but which themselves can, in no case, either exist (*existieren*) or be real (*wirklich sein*). Similarity and dissimilarity are, for instance, objects of this kind; they may subsist between realities, but they are not themselves bits of reality. Nevertheless, that in knowing we are vitally interested in these objects goes without saying. So, too, number does not exist alongside of the counted things, supposing the latter to be existents; and things that do not exist may be counted. Pure mathematics has in fact solely to do with ideal objects; and our "prejudice in favour of the real" leads here to the extraordinary, although, of course, not explicitly recognised, dilemma: Either that to which my knowing refers exists in reality, or it exists at least 'in my presentation'. And the very word 'ideal,' in defiance of its history, has come to stand for the latter. What does not exist outside of us

must at any rate exist within us—this we take involuntarily for granted, and it seldom occurs to us to reflect how futile and meaningless the subterfuge is.

Here, then, was a huge *Gebiet*, constituting, as it seemed to Meinong, that of a new science, of which only one portion, the department of mathematics, had hitherto had justice done to it. *Gegenstandstheorie* he defines as the science of objects as such, or of objects without limitation to the special class of those that exist, and of these latter only in so far as their nature (their *Sosein*), irrespective of their existence, is concerned. It has to inquire, one might, borrowing a favourite expression of Shadworth Hodgson's, say, what an object is 'known-as'; about its 'what' and not about its 'that'. Or it may be said to be the science of what can be known *a priori* about objects, understanding *a priori* in the sense in which Meinong uses the term.[1]

What is meant here by *Gegenstand?* A formal definition is, we are told, precluded, seeing that both *genus* and *differentia* are wanting; *alles ist Gegenstand.* But etymologically the term *gegenstehen* furnishes, at least, an indirect characteristic. This term has reference, namely, to the experiences through which the *Gegenstand* is grasped or apprehended (*erfasst*), the experiences, however, not being looked upon as in any way constitutive for the *Gegenstand.* Every inner experience (*Erlebnis*), at least every sufficiently elementary one, has an object (*Gegenstand*), and in so far as the experience comes to expression, ordinarily in words and sentences, there stands normally over against such expression a significance or meaning (*Bedeutung*), and this is the object.[2] In so far as all objects in order to be known must be grasped or apprehended (*erfasst*), it is true that what is grasped or apprehended (*Erfasstes*) and object are the same. What is apprehended can, however, either be thought of as such or only as object. In the former case, the relation in which the object stands to the apprehending subject is thought of along with it. Yet it is by no means necessary that it should be. What is grasped or apprehended can be thought of merely as object, for, not only is the relation in question not contained in the thought of the object, it belongs in no way to the nature of the object. Every object stands in relations to other objects; the fact that along with these relations there

[1] Judgments are said by him to be *a priori* when they (*a*) are grounded on the nature of their objects, (*b*) evince themselves as of self-evidencing certainty, (*c*) hold necessarily, and (*d*) are independent of existence. See *Erfahrungsgrundlagen*, p. 10.

[2] *Cf. Ueber Annahmen*, 2te Aufl., p. 26.

is that of being apprehended by a subject gives to the object the character of being an *apprehended* object, but not that of being an *object*. An object can *be* when the presentation by which it would be apprehended *is not;* and it can likewise *not be* when this presentation *is*.[1]

As the notion of object in general may in some measure be determined from the point of view of apprehension, so Meinong thinks the chief classes of objects may be characterised by reference to the chief classes of apprehending experiences (*der erfassenden Erlebnisse*). Accordingly, the four main classes of experiences—presentation (*vorstellen*), thinking, feeling, and conation—may be said to have corresponding to them the four classes of *Gegenstände*—Objects,[2] Objectives, Dignitatives, and Desideratives—only the peculiar character of these objects must not be assumed to be first constituted by the peculiar character of the experiences by which they are apprehended.

(*a*) The various species of Objects may be brought to light by different modes of division, but meanwhile I confine attention to the division of them into those which exist, those which subsist, and those which neither exist nor subsist.

That there are non-existent Objects—that is to say, Objects which only subsist—Meinong took to be indisputable. No one would assert that the difference between red and green exists as tables and chairs exist; but equally no one would doubt the being of this difference. The difference between red and green is not, it is true, seen as the colours are seen, but then perception[3] is not requisite for its apprehension; from the nature of red and green it is manifest that they *are* different.[4] Difference is, in fact, a *superius* which discloses itself in an *a priori* manner from the *inferiora;*[5] it is founded (*fundiert*) through its *inferiora*.

Meinong was likewise convinced that a class of non-subsistent Objects must be recognised. Impossible Objects, such as a round square, do not subsist, nevertheless they are Objects, so that we seem driven to the apparent paradox of asserting the being of that which has not being. Meinong's position in this reference is a difficult one; but, then, the problem which he was here up against is extraordinarily

[1] For several reasons, it is, I think, unfortunate that Meinong should have used the term *Gegenstand* in this all-inclusive sense. If he had employed the term 'being' with the comprehensive denotation it has become customary to give to it, he might have spoken of "entities" instead of "objects," and of a science of entities instead of a *Gegenstandstheorie*.

[2] When translating the German *Objekt*, I will use a capital O.

[3] Meinong's view of perception I leave over for discussion.

[4] *Cf.*, *Erfahrungsgrundlagen*, p. 5 *sqq.*

[5] See above, p. 21.

difficult. He tried, however, to meet the various objections that were raised against his view. Little weight could, he thought, be laid on the argument that the Objects which he regarded as non-subsistent must, in truth, be subsistent, seeing that they can be the subjects of true and therefore subsistent propositions. For obviously it is an argument which cannot be used by those who deny that there are non-subsistent Objects. If, as a matter of fact, a kind of being must belong to the round square, because subsistence cannot be denied to certain propositions based upon it, that is an argument *for* Objects such as a round square and *not* an argument *against* them. And to Mr. Russell's contention that the admission of impossible Objects involves denying the law of contradiction (the round square can be asserted to be both round and not round), his answer was that the law of contradiction had never been asserted except of the actual and the possible, and that whether it holds likewise of the impossible requires at least special scrutiny.[1] Meinong saw, at all events, that the problem is a real one and faced it seriously, whereas usually it is conveniently thrust aside as though it were no problem at all.

There is, however, a further difficulty with respect to this class of objects, about which I should like to say a few words. It arises in reference to the first division of them, of which I have not as yet spoken. What reason is there, on the view Meinong was taking, for supposing that there are *Objects* which not only subsist but exist? Meinong himself distinguished between these two kinds of being by pointing out that what exists must exist at some definite period of time, whereas what merely subsists is timeless, although existence as such is as timeless as subsistence.[2] And his pupil Ameseder, who usually follows him closely, adds the further differentiation that "that only is real (or existent) which can operate causally".[3] Meinong certainly seems to imply that sense-data (*Empfindungsgegenstände*) do not exist. These 'homeless objects' (so described because hitherto they had formed part of the subject-matter of no science) are, he

[1] *Ueber die Stellung der Gegenstandstheorie*, p. 16. In his review of this book (MIND, N.S., xvi., p. 439), Mr. Russell urges that the reply "seems to overlook the fact that it is of propositions (*i.e.*, of 'Objectives' in Meinong's terminology), not of subjects, that the law of contradiction is asserted". I do not see that Meinong's remarks give countenance to this supposition. He appears to me to be saying that to suppose that two contradictory propositions can both be true may not be inadmissible when their subjects are impossible Objects.

[2] *Cf.*, *Ueber Annahmen*, 2te Aufl. p. 75.

[3] *Untersuchungen zur Gegenstandstheorie*, p. 79.

insists, neither mental nor physical. Colours, for example, are not mental; acts of seeing them are, of course, mental, and so likewise are the contents of these acts; but colours are quite distinct from presentations of colours. Nor are they physical; their substitutes in the material world are vibratory motions or modes of energy.[1] Ameseder definitely affirms that "since a colour is, like every other object of sensation, not capable of operating causally, its being is not existence". Every sensation, he contends, has a cause, but this cause is never identical with what, through the sensation, is apprehended. The cause is physical, or, at any rate, not psychical; what is apprehended through the sensation, the sense-datum, is neither physical nor psychical, and is not an existent.[2] Sense-data, then, being excluded, what are the existents that can be said to be Objects, in Meinong's sense of *Vorstellungsgegenstände?* As instances of existents, Ameseder mentions a quantum of water and a psychical process. But the water, as distinct from the sense-data erroneously, as he thinks, ascribed to it, is not presented, and can only be known, if at all, through perception, perception being in Meinong's view always an act of judging. Physical existents, one would gather, therefore, never can be Objects (*Objekte*). And the same would appear to be true of psychical processes, for they, too, according to the theory, cannot be presented. So that it would seem as though we were driven to the conclusion that for human knowledge, at any rate, there are no existent Objects. It is here, I think, that we come upon one of the weaknesses of Meinong's doctrine of *Vorstellungen*.

(*b*) His view of Objectives has become sufficiently familiar from Mr. Russell's discussions of it. If by a "proposition" be meant not a form of words which expresses what is either true or false, but that which is expressed by the form of words, that which is true or false, an Objective is equivalent to a proposition. Meinong himself preferred to say that a sentence *is* an expression of an act of thinking (an act of judging or assuming) and *has* a meaning; and that the meaning is the Objective, *i.e.*, the object of the act of thought. Just as it is a characteristic of every *Vorstellung* to present an Object, so it lies in the nature of every act of thought to think an Objective. By employing the term 'Objective' Meinong wished to emphasise that what is judged or supposed is not an ideal *construction* on the part of

[1] *Ueber die Stellung der Gegenstandstheorie*, pp. 8-9.
[2] *Untersuchungen zur Gegenstandstheorie*, pp. 94 and 481-482.

the mind; that it is not the content of an act of thought any more than a presented object is the content of a presentation; that it is what thought discovers and not what thought may be supposed to make or manufacture. Objectives must clearly be "objects of higher order," and as such they are founded (*fundiert*) upon other objects—that is to say, either directly or indirectly[1] upon Objects. Confining attention at present to acts of judgment (*i.e.*, omitting *Annahmen*), we may say that the Objective is what is judged (*was geurteilt wird*), and the Object what is judged about (*was beurteilt wird*). If, for example, it be asserted that the fire is bright, the Objective is "that the fire is bright," and this Objective is founded upon the Objects "the fire" and "brightness". Objectives are, of course, incapable of existence, but only false Objectives are incapable of subsistence. In his latest writings, Meinong was in the habit of saying that every object *has* being (or non-being); that there are, however, objects which not only *have* being (in this widest sense) but also *are* being, and that these are Objectives, while what *has* being, and *is* not being, is thereby characterised as Object. Or, expressed otherwise, Objectives attach to Objects, and Objects stand in Objectives. What exactly is to be understood by the non-being of false Objectives is, he admitted, a matter that requires investigation. Naming it meanwhile *Aussersein*, what remains undecided is whether this *Aussersein* is a determination of being or whether it denotes simply deprivation of being. The principle of Occam's razor and the circumstance that *Aussersein* has no negative seemed to him to favour the latter alternative, although he recognised the difficulty of the position.[2]

Being, taken in the widest sense as that which comes before us in every Objective, evinces itself either as being in the narrower sense, expressed in the form "*A* is"; or as being so-and-so (*Sosein*), "*A* is *B*"; or as co-being (*Mitsein*), "If *A*, then *B*". These correspond more or less to the distinctions recognised by traditional logic between so-called existential, categorical, and hypothetical judgments. [Whether there is any class of Objectives corresponding to the disjunctive judgment of traditional logic Meinong considered to be doubtful; it would rather seem, he suggested, that we have here to do with complexes of Objectives, such as may be

[1] The Objective of one act of thought can, of course, be founded upon an Objective of another, *e.g.*, 'it is certain that *A* is *B*,' where what is judged to be certain is neither *A* nor *B* but 'that *A* is *B*'.

[2] The difficulty is not, of course, peculiar to Meinong's view. On *no* theory, so far as I can see, has any satisfactory explanation been given of what Meinong called "false Objectives".

met with in each of the three classes mentioned.] Since both *Sosein* and *Mitsein* necessarily involve a bifurcation of *inferiora*, these *inferiora* exhibit themselves in characteristic relations—the relation of predication in the case of *Sosein*, that of implication in the case of *Mitsein*. *Sosein*, again, falls into the sub-divisions of *Wassein* (*e.g.*, "the horse is a mammal") and *Wiesein* (*e.g.*, "snow is white"); and *Mitsein* appears to be differentiated into the cases where the *inferiora* stand in an "if-relation" and those where they stand in a "because-relation".

Meinong held further that the peculiarity of the being of Objectives is manifested in nothing more decidedly than in the modal qualities which, as he maintained, belong to it. Actuality (*Tatsächlichkeit*),[1] the quality of being a fact, can be ascribed only to Objectives, or to other objects only in a derivative sense. And, on purely empirical grounds, Meinong was convinced that when we are thinking of the factual character of an Objective we need not be thinking of the certainty and evidence in the judgment which grasps it. Certainty and evidence are subjective characteristics,—the one belonging to the act of judging and the other to its content; and, although we may come to be aware of the factual character of an Objective by reflecting on the certainty and evidence of the judgment, we are usually aware of it by direct inspection. Possibility is, so to speak, actuality of a lower grade, actuality is the maximum of possibility; so that the various degrees of possibility might be represented on a line the opposite ends of which would be actuality and non-actuality. So, too, necessity is a characteristic of many Objectives, a characteristic which is grasped, Meinong maintained, by what he called rational evidence, but which is in no sense constituted thereby. The characteristic of necessity, when it belongs to an Objective, is knowable in the most direct and immediate way;[2] it is given as something essentially positive, so that the interpretation of it as the inconceivability of the opposite is ruled out on this account alone. Not only so. Necessity cannot be taken to be an enhanced degree of actuality, as the latter is an enhanced degree of possibility, for actuality does not admit of enhancement. And, on the other hand, it is, in strictness, no less absurd to speak of a decrease of necessity, out of which decrease actuality could, as it were, result. For even

[1] If *Tatsächlichkeit* be rendered here by 'actuality,' actuality must not of course be taken to signify existence.

[2] *Cf.* the opening pages of *Erfahrungsgrundlagen.*

[3] *Ueber Möglichkeit und Wahrscheinlichkeit*, p. 122 *sqq.*

within the region of merely possible Objectives necessity is likewise to be found.[3]

(*c* and *d*.) Presentation and thought are, however, far from being the only means by which, as Meinong conceived, objects (*Gegenstände*) can be experienced by a conscious mind. No doubt the capacity of feeling as a medium of knowledge falls a long way behind that of presentation. Yet when, for instance, we pronounce a degree of warmth to be pleasant, it is easily seen, he urged, how utterly foreign it would be to experience to interpret the quality pleasant as being an experienced feeling produced in us by the warmth. So, too, he contended, the heavens are called beautiful in no other sense than that in which they are called blue, save that the experience (*Erlebnis*) through which the former of these qualities comes to recognition does not play in the inner life *merely* the part of being a mode of grasping or apprehending. But, all the same, it *does* play that part; and, consequently, there stand over against the feelings special kinds of objects, precisely as there do over against presentations and thoughts. These objects are always objects of higher order; and are, therefore, akin to Objectives. Meinong distinguished four classes of feelings—namely, those accompanying (i) the act of presentation, (ii) its content, (iii) the act of thought, and (iv) its content; and he tried to show that to each of these a specific kind of object could be correlated—namely, the qualities pleasant, beautiful, true, and good (provided that not only a cognitive but a feeling significance be ascribed to the term 'true'). These values, then, are distinctively objects (*e.g.*, when we say 'this ornament is pretty' we imply that it deserves to please, that it is worthy of being regarded as pleasure-giving); they are grasped through or by means of experiences, as all other objects are, but in their essence they are independent of such experiences; and as such they are what he designated Dignitatives. So, too, in desire, that which is desired is grasped through or by means of the content of the act of desiring, but it is not constituted thereby. To this class of Desideratives, may be reckoned objects that fall under the heads of *Sollen* and *Zweck*.

In the manner I have thus tried briefly to sketch, Meinong contrived to map out broadly the province of *Gegenstandstheorie*, and to carry out in several of its departments researches of a far-reaching kind. It may be objected that a province of these dimensions must certainly be co-extensive with the whole of philosophy, if not with the whole of knowledge. Meinong thought otherwise. It is clearly possible, he maintained, to deal separately with the general properties

of objects, to consider what can be ascertained *a priori* from their nature, without reference to their existence or non-existence. So regarded, it seemed to him that *Gegenstandstheorie* belongs to philosophy as an essential part of it; and that it in no way encroaches upon those parts of philosophy already recognised. That his investigation of its problems led him to important inquiries in other fields, particularly in the fields of psychology and the theory of knowledge, I shall try to show in a second article.

(*To be continued.*)

II.—CONCERNING "TRANSCENDENCE" AND "BIFURCATION".

By Roy Wood Sellars.

At the present moment, a division in the ranks of realism of major significance is making itself increasingly apparent. On the one hand, we have the advocates of neo-realism, which is a form of naïve realism; on the other, the protagonists of critical realism. Both groups agree on the primary principle of realism that the object of knowledge is independent, as regards its existence and nature, of the act of knowledge. But they differ as to the location of the object and the character of knowledge. This difference is usually expressed by the contrast between transcendence and immanence.[1] The critical realist holds that physical things and other minds transcend the mind of the knower, while the neo-realist is convinced that they are directly given to his mind.

It is impossible to make this contrast accurate apart from detailed statements of the meaning given to such terms as mind and experience. But I feel that I can take it for granted that the difference between the two groups in this respect is well known. The neo-realist accepts a compresence of knower and known in the cognitive experience and thus makes experience literally include subject and object. The critical realist, on the contrary, denies that the existent *which is made the object of knowledge* can be brought into the field of experience.

This contrast may be expressed by the terms epistemological dualism and epistemological monism; and, again, by the distinction between knowledge as apprehension and knowledge as a claim made for ideas, a reference of ideas or predicates to an affirmed, transcendent existent.

The distinctive feature of critical realism is, accordingly, its defence of transcendence and correspondence in the face of the unanimous opposition of neo-realism, pragmatism and

[1] I note that Prof. Perry has adopted this contrast in a recent review of *Essays in Critical Realism.*

idealism. It claims to have made new analyses which justify it in this rather daring stand. Those who really desire to see philosophy advance will surely take the trouble to make a serious effort to understand the critical realist and will not content themselves with saying that the refutation of Locke's copy theory has settled the question once for all.

In his recent Gifford Lectures, Prof. Alexander has devoted a few pages to a criticism of the form which the doctrine of a transcendent existent conditioning presentations has taken with Stout and Külpe. I shall concern myself with my own reaction to Alexander's arguments, leaving Stout to defend himself.[1]

Alexander quotes Stout as follows: "we must assume that the simplest datum of sense-perception from which the cognition of an external world can develop consists not merely in a sensuous presentation, but in a sensuous presentation apprehended as conditioned by something other than itself".[2] To this assertion he replies that the "reference is to the object, that is to the presentation itself; for the theory under consideration the reference is to something beyond and behind it". Now my own analysis is nearer Alexander's than Stout's. I find two elements in perception, the affirmation of an object and the appearance of that object. I do not find this sense of conditioning to which Stout refers. But my objection to Alexander's attitude is that he is satisfied with *immediate experience*. But why should philosophy be any more satisfied with immediate experience than is science? For science, immediate experience is the point of departure and not the conclusion. All facts must be taken into consideration before the final synthesis is made. In all my writings, I have argued that naïve realism is the point of departure and that *reflexion* breaks it down and forces us to make the distinction between presentation, or datum, and thing. I believe that this was Külpe's position, and I know that it is the position of the American group. The distinction we have, and there is nothing self-contradictory in it.

Now Alexander does not believe that reflexion forces us to make this contrast, and he, therefore, remains a naïve realist. For the subtle way in which he carries through the distinction between object and thing I have the greatest admiration; but I am convinced that the facts of science indicate that the datum, or content, of perception is subjective or bound up with the percipient organism and that the various appear-

[1] I understand that Külpe's more constructive work is in process of publication under Messer's editorship.

[2] Alexander, *Space, Time and Deity*, vol. ii., p. 96.

ances of things cannot be harmonised without reference to this fundamental condition.[1]

The desperate attemps which naïve realists make to meet the traditional objections is clearly motivated by the belief that the choice is between naïve realism and idealism. The assumption that a non-presentative theory of knowledge cannot be carried through controls the direction of their thought. The American new realists have acknowledged this, and Alexander makes essentially the same confession on page 98: "How can experience warrant a reference to this something conditioning presentation which we never have experienced and which is only a symbol for the non-mental? . . . But the supposed condition of presentation cannot be further known for it is not known at all." But is this not to assume that knowledge must be a presentation or an experiencing? It is at this point that dogma enters. Certainly, knowledge must be based upon experience; but what right has any thinker to assert that the thing known *must* be given in experience, must be an existential component of experience?

Critical realism is an attempt to devolop a non-presentative view of knowledge. It seems advisable to use this negative phrase at the beginning in order to avoid the historical associations which a term like "representative" inevitably has. But, first of all, let me insist that there are different kinds of knowledge. There is knowledge of what is immanent in experience such as ideal objects, sense-data, feelings, etc.; and there is knowledge of what is transcendent to the individual knower. Without the first, we could not have the second. There are, of course, many points of interest in regard to the first kind of knowledge but I must neglect them for the sake of concentration upon the second kind of knowledge, which has so often been denied and misunderstood—denied, I believe, because misunderstood.

One reason for this misunderstanding of non-presentative knowledge was the confusion of epistemology with metaphysics so long prevalent. Epistemological dualism was associated with metaphysical dualism and was actually hopelessly entangled with such assumptions as "mind and matter" and "substratum with inherent qualities". Let it be borne in mind, therefore, that the critical realist is concerning himself with the individual's knowledge of objects in his environment which are obviously not himself

[1] This is quite obviously not the place to go into details in criticism of naïve realism. May I refer to my examination of it in *Critical Realism*, ch. i., and to Drake's arguments in *Essays in Critical Realism?*

and yet not in another world in any metaphysical sense. To use Whitehead's terminology, the critical realist maintains that the "situation" of sense-objects is the percipient event, the body of the percipient, the nervous system, while the "situation" of physical objects is in the extra-bodily event. I shall try to show later that this *reflective assignment* does not involve either "bifurcation" or Aristotle's view of matter. With Whitehead's philosophy of nature I have almost complete sympathy but I do think that it can be separated from naïve realism.[1]

Lockian realism is a thwarted naïve realism controlled by scholastic metaphysics. There is in it no adequate attempt to reinterpret the act and content of knowledge. He is convinced that the physical thing and the ideas in the "mind"[2] of the percipient cannot be identical, that the situation of the latter is not that of the former; but his stress upon causal relations leads him to forget the knowledge-claim and to fall back on a mere statement of partial likeness. In my own essay in our co-operative volume I have tried to explain this point. Thus, though an epistemological dualist, I can heartily agree with Whitehead when he says that science concerns itself with nature as known. But is not nature a condition of its being known? We must supplement the physiological theory of perception with an analysis of knowledge and its claims, and that is what Locke failed to do in any adequate way. Even for Whitehead, knowledge is an ultimate claim and mystery. He simply knows that "nature is what we are aware of in perception".

The critical realist holds that he finds the act of knowledge, whether at the level of perception or of critical scientific judgment, is a claim to grasp in some measure the character and relations of its object. Now this object is, as Stout holds, the condition of the presentation in perception but knowledge does not directly concern itself with that fact but with affirming and grasping its object. The two things must not be confused. They do not contradict each other; they are simply different.

The difference between naïve and critical realism as theories of knowledge is accordingly this: naïve realism believes that the object affirmed or referred to is given—existentially or literally given in the field of experience—while the critical realist holds that the object to which his organism is responding and which he affirms is not so given but that the

[1] May I in this connexion state that my *Evolutionary Naturalism* which has been so long delayed in the press will come out this Fall?

[2] No critical realist has a naïve, substantialistic, soul-like idea of mind. It is a term for operations and contents with specific situations.

presentation which is given is both instinctively and reflectively assigned to the object. It is the cognitive reaching out to or grasping of the object which the critical realist stresses. *And he believes that a cognitive grasping by means of characters or universals is valid, that it is what we do, and that it is the only thing we can do.* In other words, his position is a flat challenging of the dogma that knowledge must be a presentation of the thing itself.

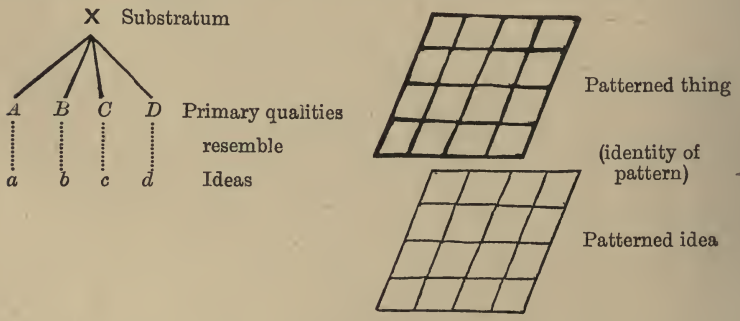
While we are analysing knowledge and pointing out the difference between Lockianism and critical realism, another fact needs emphasis. There is not in the immediate knowledge-claim the absurd attempt to compare idea and object. I do not find in the knowledge-claim anything but predications about the thing which is the object of reference or, at the level of perception, assignment of characters to the thing. And yet this comparison notion was one absurdity for which non-presentative realism was discarded in that dogmatic and blind way that is so common that it will be hard to get a fair hearing for critical realism. The mistake of Locke, who had not really analysed the knowledge-claim (note his definition of knowledge as the perception of the agreement or disagreement of two ideas), was fastened on, to the exclusion of other possibilities. If we had both a cognitive idea and thing, what would be the use of the idea? And it must be remembered that a cognitive idea as a part of a knowledge-claim is quite different from a mere image as an object of attention.

The act of knowledge is a distinct claim or assertion which contains an idea or complex of universals as the content of its assertion, as what is predicated of the object as that object's character. Such a claim has its postulate and its more or less instinctive basis. Its postulate—justified, I think, by the situation of the percipient organism and the guiding value of knowledge—is twofold: (1) the revealing capacity of the presentational complex with its differential pattern and (2) the ability of the mind to elicit by thought the maximum of knowledge from this complex. The mind discovers and quarries knowledge out of the material of perceptual observation.

What can be revealed by the presentational complex? Let me stress the fact that much of the objection to non-presentative realism lay here. My answer will at least be definite, and, I think, true. *That* will be revealed which can be reproduced. And the more that I reflect and the more I study science, the more I am convinced that it is *the determinate order, structure and behaviour of the physical world*

which is reproduced. It is a correspondence of static and dynamic pattern *in different media* to the discovery of which all sense-data and activities, like measurement, can act as clues. We do not have here the idea of entitative likeness of stuff against which Berkeley protested when he said that a sensation could be like only a sensation, a view which was inherent in the scholastic conception of properties in a substratum. What we know, what is revealed, is the determinate structure and behaviour of things and not attributes in the old sense, whether primary or secondary. Thus our theory of knowledge agrees with Whitehead's rejection of the old substratum notion of matter while yet making all sense-objects subjective together, that is, in the situation of the percipient event, the organism. This is only a brief indication of the entire reinterpretation of what knowledge grasps and what is reproducible. It is the pattern of things which is reproducible in experience, just as the structure of an organ is reproduced by the histologist in wax. The analogy is real, though the difference of medium must not be overlooked.

My conception has been so inadequately grasped in the past—largely my own fault, I have no doubt—that I wish to be certain that I have at least made myself clear. My fundamental concept is that there is between idea and thing an identity of order and not of material. A thing is an *ordered material*, and it is this order which may arise elsewhere under its control with no identity of material. It is a correspondence of pattern and not a likeness of stuff which I have in mind. The difference between the old representative theory and my own can be indicated as follows:



From this contrast, which could be still further developed by bringing out behaviour as the temporal phase of pattern, the marked difference in the conception of what knowledge

grasps comes out. We cannot grasp the stuff of our object but only its form or pattern; for the one can be reproduced in the medium of experience, the other cannot, for it is the existence of the thing. But I must not move too far into my metaphysics.

Faulty as Locke's epistemology was, the nominalistic psychology which succeeded it was still worse. Justice was not done to thought, to distinctions and to cognitive references. And the harm was done. It was not until practically the twentieth century that realism again raised its head. And then naïve realism rather than the more subtle critical realism was path-breaking.

But we must press on to defend transcendence, a notion which, as we saw, distinguishes the critical realist from all other schools of philosophy. First of all, let us point out that the term "object" is ambiguous. When Whitehead states that nature is what we are aware of in perception, he is both right and wrong. The terms "what" and "aware" need analysis. In perception, reflexion forces us to make distinctions which make explicit what is already implicit. "What" breaks up into object and its content or appearance; "aware" breaks up into reference and consciousness of datum or appearance. Thus the critical realist is quite willing to say that nature is what he is aware of; but he holds the situation to be more complex than does the naïve realist. Let us call the datum the object of intuition or what is given (no mystical idea of intuition is assumed), and the physical existent the object of perception, the thing to which the organism is responding and adjusting itself. The point is that, in perception, this external object of selective behaviour is affirmed and automatically interpreted in terms of the datum or object of intuition. It is this apparent coalescence or identity of object of intuition and object of organic adjustment which furnishes the unanalysed point of departure and strength of naïve realism.

Because of this identification of object of intuition and object of adjustment, without which consciousness could have no guiding value, philosophy has assumed that an object must be given in experience. But the truth is that only the datum or object of intuition is given. The automatic coalescence or identification of the two kinds of objects has misled philosophy. A physical thing is an object only in the sense that it is made an object by the percipient organism. *That is what object means in this case.* By its very nature and situation it is outside the individual's experience-complex, though not outside the reach of knowledge as a claim or

reference. The object of intuition, the datum, the appearance is within experience. Once this distinction is thoroughly grasped, it will be seen that there is no contradiction in the thought of a transcendent object. The object of the percipient organism is by its very nature transcendent, that is, other than the organism. Perception is the natural identification of object of intuition and object of response, or the assignment of the one object to the other. Is the critical realist making a new and more adequate analysis here than has been done in the past? I am persuaded that he is.

The existent which is selected as the object of reference has its own determinate nature. It is a patterned or ordered stuff. What character has the cognitive idea to enable it to give knowledge of the object? I have argued that there is a reproduced identity of pattern or order in the dimensions of space and time. There is thus an identity between cognitive idea and object, an identity of understood pattern with the pattern of the physical existent. Put in other words, the applicability of universals to the object is validated by this identity. Since one member of the two terms is a complex of logical characters or meanings, the identity itself may be spoken of as a logical identity. But it must be remembered that the object is reproduced only with respect to its determinations and not existentially. To know a thing is not to have the thing itself with its energies and creative activities in the mind. Knowledge is as near to the thing as we can get and is very valuable, but by its very situation and nature falls short of being.

To guard against misunderstanding, I would emphasise the fact that the data of perception assigned so automatically to the object are rather the material for critical knowledge which can employ all of it as the point of departure for mature critical judgment.

When I assert that critical realism involves epistemological dualism, I do so with my own critical notion of epistemological dualism in mind. In the act of knowledge, the existence of the idea is disregarded, only its content is held before the attention. Yet reflexion must admit that the idea which grasps the determinations of the object through identity is yet existentially distinct from the object. This existential distinctness forces us to speak of correspondence, for in correspondence we have the two elements of numerical difference and logical identity. But let us remember that in knowledge the idea means the object and does not linger on itself. We say that a thing *is* composed of cells, *is* of a certain size, *behaves* in a certain way, etc. In knowledge,

there is no bifurcation and yet the data are in the situation of the percipient event.

The mistake to be avoided is to think of *something* as passing back and forth between mind and thing. Aristotelianism was not free from this mistake. There was, also, in Aristotelianism a tendency to metaphysical dualism between form and matter. Both of these mistakes are quite unnecessary. Form or pattern as against matter is a part within the whole or, better yet because more complete, a logical distinction and not an ontological entity. Yet because of its historical associations in scholastic philosophy, I am inclined to fight shy of the term "essence".

While I have in this paper attacked Prof. Whitehead's epistemology, I am no friend of bifurcation for either science or metaphysics. But what, on an incomplete analysis, may seem to involve bifurcation may not actually do so. I think that I have pointed out enough to make it clear that none of the bifurcative positions he attacks is identical with critical realism. Prof. Whitehead extrudes mind from nature in a very hasty fashion. Practically no philosopher on this side of the water, be he pragmatist, new realist or critical realist, would assert with Prof. Whitehead that action upon mind is not action in nature. Mind is not alien. It is the nervous system. And the nature known in perception is identical with the nature which is one condition of the sense-objects by means of which we know it. But let me hasten to add that with the aim of Prof. Whitehead I have nothing but agreement. The task of science is correctly put as the discussion of "the relations *inter se* of things known, abstracted from the bare fact that they are known". And yet a *philosophy of nature* can hardly be separated from an epistemology. There will be quirks in it which will reflect the assumptions made.

III.—DR. WILDON CARR AND LORD HALDANE ON SCIENTIFIC RELATIVITY.

By J. E. Turner.

Both Dr. Carr and Lord Haldane appear to draw far too heavily upon the scientific theory of relativity as an argument for the philosophic principle. In this respect Einstein's recent statement that "there was nothing specially, certainly nothing intentionally, philosophical about it"[1] is highly significant; for it is extremely improbable that its philosophic bearings should always, during his long investigation, have been altogether absent from his mind; and, further, such speculative suggestions as he has advanced have taken a wholly different direction.[2]

It is therefore, I think, fundamentally important to recognise that the scientific theory in itself has at bottom very little bearing on any form of the philosophic principle of relativity; so little indeed that it is even doubtful that it "is only an illustration of its application to a special subject,"[3] moderate though this position is as compared with other recent interpretations. For the scientific theory is concerned, and is concerned only, with certain definitely *limited aspects* of space and time—with what Einstein has called "an analysis of the *physical* conceptions of time and space"[4]—a limitation which is, of course, perfectly legitimate from the scientific standpoint, but which must none the less be carefully borne in mind in any discussion of the theory's philosophic implications. To pass from these "physical conceptions" to the philosophical aspects of time and space is to "cross the Rubicon"; and much of the prevailing confusion is due to the transition being undertaken as though it were of no significance, so that what is true of the scientific concepts is also regarded as true of time and space within philosophy. Thus while Dr. Carr and Lord Haldane refer

[1] Report of lecture, *Nature*, 16th June, 1921, p. 504.
[2] *Cf.* below, p. 45, n. 3.
[3] Haldane, *The Reign of Relativity*, p. 34. *Cf.* p. 39.
[4] *The Theory of Relativity*, p. 19. *Cf.* p. 23, "a definition of time *in physics*". (My italics.)

to them as distinguishable,[1] neither appears adequately to recognise the crucial importance of the distinction.

This impression is confirmed, I think, by a curiously interesting passage in Einstein's *Theory of Relativity*. "We entirely shun," he says, "the vague word space, of which, we must honestly acknowledge, we *cannot form the slightest conception*, and we replace it by motion relative to a practically rigid body of reference."[2] It is difficult to appreciate the exact value of this statement, because it is not strictly adhered to by Einstein himself;[3] it seems to me to indicate his emphasis on the "physical interpretation of space and time data" (p. 79), and his explicit exclusion of any wider reference;[4] which again warns us that in going beyond the scientific field of enquiry we cannot interpret scientific conclusions without further analysis and qualification.

It is in consonance with this that Cunningham maintains that "The principle is not a metaphysical doctrine based on the supposition that it is impossible to conceive of an absolute standard of position in space. Dynamical relativity is a different thing from a statement as to what is within the power of the mind to conceive about position and motion."[5] While therefore it may be true, it is irrelevant to the bearing of scientific relativity upon philosophy to assert that "the idea of an absolute motion is a metaphysical invention of the school of classical mechanics," or that "absolute position, shape, and measurement are all unmeaning";[6] for in so far as "absolute entities" (or concepts) are criticised by Einstein they are regarded not as metaphysically, but purely as physically, "absolute"; the "absolute time," *e.g.*, of classical mechanics is "absolute," not metaphysically, but as "independent of the position and the condition of motion of the

[1] *The Reign of Relativity*, pp. 55, 59, 70. *The Principle of Relativity*, chaps. i. and vii.

[2] P. 9. My italics.

[3] He speaks, *e.g.*, of "relative orientation in space of co-ordinate systems" (p. 32); "the law governing the gravitational field in space" (p. 64); again, "space is a three-dimensional continuum" (p. 55) and "the geometrical properties of space are determined by matter" (p. 113).

[4] *Cf.*, "In respect of its rôle in the *equations* of physics, though not with regard to its *physical* significance, time is equivalent to the space-co-ordinates (apart from the *relations of reality*)"; *Nature*, 17th Feb., 1921, p. 783. (Italics mine.) Similarly Cunningham, "Space and time co-ordinates are only means of specifying a single fact or occurrence"; *Relativity and the Electron Theory*, 1st ed., p. 73. Einstein's later remarks seem to me to convey a suspicion that his standpoint has been misinterpreted philosophically.

[5] *Op. cit.*, pp. 2, 3.

[6] *The Reign of Relativity*, pp. 55, 88.

system of co-ordinates"; [1] here, as always, we are concerned with "physical conceptions". And when (further) we limit ourselves to these, we find that absolute standards can never be completely dispensed with, inasmuch as the *Eigenzeit* and *Eigenraum* of any given reference system are (for that system) absolute and invariant.[2]

(1) From this general standpoint, which I think expresses Einstein's meaning in saying there is nothing philosophical about his Theory,[3] it appears to me that throughout Dr. Carr's volume no adequate distinction is maintained between space and time on the one hand and our systems of measuring these entities on the other; we are carried from the one to the other without any sufficient indication of the vital importance (for Philosophy) of the transition.

The Theory that the results of observations which involve spatio-temporal measurements are conditioned by the velocity of the observer,[4] involves a limiting case which has been too much disregarded in philosophic discussion—the instance, *i.e.*, of observers in one reference system, who obtain, therefore, *identical* results. This identity is of subordinate importance to scientists, because it is comparatively free from mathematical difficulties; but philosophically it is extremely significant, for two reasons. First, because it proves quite definitely that those discordances in the content of our experience, from which so many important philosophic conclusions have recently been drawn, are due to nothing except either (*a*) differences in the velocities—not of the observers, *as conscious observers*, but—of their physical systems of reference, or (*b*) certain conditions (again physical) whose nature, though as yet far from being understood, nevertheless presents aspects which have abstract mathematical equivalents.[5]

These discrepancies, therefore, while they certainly affect most materially the detailed content of knowledge, can have no bearing whatever on the *nature* of knowledge, or of experience, or of reality, in general and as such; unless, *i.e.*, we are going to base our epistemology on the rate at which we happen to be moving, or on gravitational potentials. And

[1] *The Theory of Relativity*, p. 56. *Cf.* Dr. Carr, *op. cit.*, p. 20, at foot.

[2] *Cf.*, "A law of such change which is independent of such relativity," *Reign of Relativity*, p. 98.

[3] In accordance with Einstein's distinction between the scientific principle, and the scientific theory of relativity (*The Theory of Relativity*, pp. 19, 40) I shall denote these by capitals, reserving "principle" for philosophic and general usage.

[4] And further by acceleration, which brings in gravitational phenomena.

[5] *Cf.* Dr. Carr, *op. cit.*, pp. 21-23.

the second reason is that the identity in question constitutes what (as I have already mentioned) all scientists accept as "absolute"—the invariable *Eigenraumzeit* of observers with identical velocity.[1]

But this "absolute" has been quite unduly neglected in recent philosophy, perhaps because of its predilection for that form of original sin manifest in all thought—its relativity. It is, however, at least as important as the variability arising from a mere physical difference in velocity or in gravitational field. It is (further) a simple logical consequence of these premises that the varying results can be exactly correlated, and the formulæ of one observer transformed into those of another. The entire situation is a natural (physical) result of the finite velocity of light, allied with our physiological incapacity to receive stimuli more basal than light signals are;[2] and it is easy to conceive conditions which would altogether exclude scientific relativity. This would be the case if gravitational impulses have infinite velocity,[3] and if we could, through a special sense-organ, directly perceive changes in gravitational intensity.

Quite apart therefore from Einstein's or Cunningham's assertions to the contrary, it is altogether irrelevant to maintain that "the particular concepts with which the principle [Theory] of relativity deals—space, time and movement—are metaphysical, and the essential concern of philosophy".[4] Obviously we have here, at the very outset, that transition from "physical conceptions" to metaphysical which is, I would submit, as yet unjustified and illegitimate.[5] But there

[1] *Cf.*, "The absolute in Nature is not abolished by the" Theory, *Nature*, 17th Feb., 1921, p. 781. Also Prof. Eddington in MIND, April, 1920, p. 145, and Haldane, "change in standpoint gives no change in the actual"; *op. cit.*, p. 402.

[2] I may be permitted to refer to the *Journal of Philosophy*, 14th April, 1921, where I have attempted a simplified presentation of the facts. *Cf.* also: "The difficulties and paradoxes associated with temporal conceptions arise from the finite velocity of propagation of all signals," Campbell, *Physics: The Elements*, p. 552. "We have not taken account of the inaccuracy involved by the finiteness of the velocity of light," Einstein, *op. cit.*, p. 10.

[3] This point is at the moment, I think, undecided.

[4] *Principle of Relativity*, p. v. *Cf.*, Prof. Eddington—"World-wide time s a mathematical system according to arbitrary rules; it has not any structural—still less any metaphysical—significance"; *Nature*, *loc. cit.*, p. 804.

[5] As this point is fundamental I may quote Einstein's own account of the history of his Theory. "The entire development starts off from, and is dominated by, the idea of Faraday and Maxwell, according to which all physical processes involve a continuity of action." He proceeds to trace the enquiry through a number of similarly scientific concepts which include "the *physical* significance of space and time" and "the assumption

is a further ground for the charge of irrelevance. Space, time and movement are not the only concepts that are metaphysical. *Every* ultimate concept is metaphysical; matter, energy, life, mind *e.g.*, in science alone; and the Theory of relativity has no more (and of course no less) connexion with any philosophic conclusions than has, *e.g.*, the quantum theory of energy or the method of chromosome division. It is illogical, if not actually erroneous, to argue that because the Theory asserts that certain results based on spatio-temporal measurements are relative, and because further time and space are metaphysical, therefore philosophic relativity is either substantiated or disproved. I am not here contending either for, or against, philosophic relativity; I merely urge that scientific relativity has but the slightest possible bearing on the question. Scientific relativity is concerned with purely physical conditions; philosophic relativity with the relation between mind and its content, or between mind and reality, within which of course space, time and movement are included. But if it be argued that this inclusion furnishes the required connecting link, the obvious reply is that philosophic relativity is not limited to these, but applies universally;[1] the Theory, therefore, restricted as it is to physical spatio-temporal concepts, can have no direct bearing on the general philosophic problem. It no more follows that because all such concepts are physically relative, therefore time and space are philosophically relative, than that because currency systems are all relative, therefore value, as a metaphysical concept, is also relative.[2]

(2) Dr. Carr advances other conclusions for which it is extremely difficult to find any basis within scientific research itself. He regards the advance from the special to the general form of the Theory as a sufficient ground for subjectivism. "The general principle [Theory] is acknowledged to concern the most fundamental philosophical concepts of the nature of the universe. The essence of it is to introduce

that simultaneity has a meaning independent of the *state of motion* of the system of co-ordinates used". Similarly Cunningham states that Newton's "space and time are natural products of Nature's laboratory, to be purified, perhaps, but not to be rejected as spurious". *Nature, loc. cit.*, pp. 782, 785. (My italics.) *Cf.* Dr. Carr, *op. cit.*, p. 3, on "rejection of space and time".

[1] This is the fundamental principle of Lord Haldane's volume.

[2] The mathematicians whose work lies at the base of the Theory have duly emphasised the essential distinction between space and time, and spatio-temporal measurement systems. *Cf. Journal of Philosophy, loc. cit.*, pp. 214, 215. Also Mach, *Space and Geometry*, pp. 97, 98.

subjectivism into physical science."[1] I have already dealt with the character of the concepts here concerned; but further, both the general and the special Theories rest on precisely the same basis. The former has no peculiar connexion whatever with subjectivism or with the "mind of the observer".

The special Theory deals with uniform rectilinear motion; the general with rotational and accelerated—and therefore, through the Principle of Equivalence, with gravitational—motion.[2] But in what possible sense can this theoretical expansion be regarded as introducing subjectivism into science? Accelerated motion is no more subjective than is uniform, nor is the "mind of the observer" more in evidence when gravitation operates than when it does not. And if it is argued that *all* motion is subjective, or the mind *always* active, the reply is (once again) that these comprehensive statements are too comprehensive, and are quite unaffected by any change in the scope of the Theory; their truth or falsity rests on altogether separate grounds. Even such speculative suggestions as Einstein has put forward have not the remotest connexion with subjectivism, but are strictly limited to physical enquiries.[3]

Thus it is not the "mind of the observer" that is directly concerned by either form of the Theory; it is merely his velocity, or rather the velocity (or its equivalent) of his reference-system. Mind is not active in any unique way in relativity investigation, and relativity as such therefore can confer no new and original status on mind which it does not possess already. I consider this point further in connexion with co-ordination, passing meanwhile to the "independence" of observations.

"It is impossible," continues Dr. Carr, "to abstract from the mind of the observer and treat his observations as themselves absolute and independent in their objectivity";[4] thus positing a relation between observations and the mind, the

[1] *Op. cit.*, p. 21. *Cf.*, p. 20, "introduction . . . of a subjective element".

[2] "Einstein asks us to consider the result of supposing that the distinction between centrifugal force and gravitational is not essential . . . his principle of equivalence" (Cunningham, *Nature*, 11th Dec., 1919, p. 374). "The general form of relativity is founded on the equality of inertial and gravitational mass" (Brose, *Theory of Relativity*, p. 21). "Can gravitation and inertia be identical? This question leads directly to the General Theory" (Einstein, *Nature*, 17th Feb., 1921, p. 783).

[3] "Is the spatial extent of the universe finite? Is inertia to be traced to mutual action with distant masses?" are questions to be decided by "a dynamical investigation of fixed stars"; *Nature*, *loc. cit.*, p. 784.

[4] *Op. cit.*, p. 21.

character of which has now been finally determined by the Theory. But just as we have seen that the "absoluteness" of time repudiated by the Theory is a purely physical characteristic, so here the independence that is denied subsists in no sense as between the mind and observations, but rather—again a radically different matter—between our scales and units and the observed phenomena.

"The whole relativity doctrine asserts that the measure relations of the phenomena perceived are incapable of determination on any absolute scale, independent of the phenomena themselves. The gravitational field must be included, and must affect the measure relations in every physical aspect";[1] or as Dr. Carr himself expresses this, but without noting its fundamental implications, "it requires us to give up the assumption of an absolute standard of reference for the measurement of the *velocity of a system*".[2] It is therefore always the phenomena and the scales that are here interdependent and relative—not mind and its observations in any direct and unique sense characteristic of physical relativity but absent in other cases.

(3) This consideration applies to some degree to Dr. Carr's later elucidation of his general position in *Nature*.[3] There we find that the reference to mind, which he regards as finally substantiated by relativity, takes the form not (it is needless to say) of any crude subjectivism, but of "a power inherent in the monads to co-ordinate ever-varying points of view. By monads I mean minds as metaphysical reals." And, while, with Dr. Carr, mind is for myself one—if not the sole—clue to the nature of Reality, both as being the highest concrete real of which we have direct experience, and in virtue of what its actuality transcendentally implies, still I fail to see that this belief derives any support from the results of the relativity Theory. The co-ordinating activity of mind remains what it was before; it is merely the co-ordinated *material* that is different, together, of course, with the formulæ that make possible the higher accuracy of the co-ordination. If we survey the whole of the subject matter, this seems to me to be obvious. Gravitation, spectral phenomena, planetary motion, electronic vibration—these have all been already co-ordinated, and most efficiently co-ordinated, by the human mind in virtue of its "inherent power," whether that implies monadism or not. And now this same "inherent power" is supplied with fundamentally

[1] Cunningham, with reference to Riemann, *Nature*, 17th Feb., 1921, p. 786.

[2] *Op. cit.*, p. 22. My italics.

[3] *Loc. cit.*, p. 810.

new data; with new assumptions as to the velocity of light and the possibilities of interpreting gravitational phenomena[1] and geometrical principles. But, epoch-making as this advance undoubtedly is, it in no way concerns the status of mind in its advance to reality; it merely corrects—fundamentally of course—the details of that conceptual content which enables mind to apprehend objective reality.

(4) These considerations apply also to Lord Haldane's treatment of the question, in spite of his explicit exclusion of all subjectivism. Even on this important point his position, so far as his brief references go, is somewhat obscure. Analysis of his epistemology would show, I think, that his objectivism is by no means firmly based. "Perception," he asserts, "is in itself chaotic and formless. It is only by interpretation that we recognise. . . . Into the results apparently yielded by direct sense-awareness concepts have entered with transforming power."[2] But what is perception itself except "interpretation"?—an "interpretation," further, which is the result of the transformation of "direct sense-awareness" by means of concepts. Lord Haldane almost seems to posit two independent agencies, "sense-awareness" or "sensations,"[3] and concepts—the latter acting on the former like

[1] This particular point, though of subsidiary importance as within the whole investigation, seems to me to have been more radically misunderstood than any other. I can see no grounds for the widespread opinion that Einstein has explained—in any final sense—gravitation; much less, of course, explained it away; and this applies to "forces" in general. "Einstein's theory, though it helps us to discover the laws according to which phenomena occur, cannot lay claim to provide a mechanical explanation of them" (*Nature*, 31st March, 1921, p. 134); it is, in brief, descriptive rather than explanatory, although a precise description of phenomena has, of course, the highest possible value. The calculation of planetary motion is more accurate; kinematically, gravitational motions may be regarded as accelerations; and gravitation energy and inertia may become in the end identified. On this point Dr. Carr seems to me to be somewhat misleading. He speaks (p. 11) of "contradictory descriptions of movement"; but the descriptions are not necessarily contradictory; they are merely alternatives, one of which is, for certain limited purposes, preferable to the other. But there still remain "the energy tensor of matter" (Einstein) and "world-mass" (Weyl);—reals, *i.e.*, that are non-mental, and therefore not the product of the "power inherent in the monads to co-ordinate" (Carr). Philosophy, then, is not yet committed to subjectivism, and the "objectivity of the universe" is still something other than "the perception-actions of infinite individual creative centres in mutual relation" (Carr, p. 162).

[2] *Op. cit.*, pp. 40, 119.

[3] *Cf.* pp. 41, 46, 152 on "sensations," "direct sensation," "isolated impressions". I think no serious theory of knowledge sets off from these. Lord Haldane's general position here is curiously similar to Croce's throughout his *Logic*.

an acid on a base; whereas the truth seems to be that some degree of "interpretation" is present from the very beginning of experience—a conclusion, further, more in consonance with his volume as a whole.[1] If, again, "our world begins in sentience. We distinguish our sensations in relations of time and space. Object and subject are phases within a mental process,"[2] we approach, to say the least, perilously near to a subjectivism whose barriers no transforming concepts whatever will surmount. "I cannot get beyond my own senses in immediate apprehension," affirms Lord Haldane;[3] always the crucial test of an epistemology is its treatment of perception; a subject to which I shall return in connexion with observation and experiment.

This however is not the main issue, which concerns the bearing of scientific upon philosophical relativity. I think we find Lord Haldane's fundamental argument expressed in the statements: "Space and time disappear as self-subsistent, and in their place we get a plurality of relative systems. (Einstein claims) to have deprived space and time of their supposed characters as self-subsistent and uniform frameworks of existence, belonging to an altogether non-mental world. Spatial and temporal relations depend on the situations and conditions of observers. The character of space and time is therefore purely relative, and so is their *reality*."[4]

It appears to me that Lord Haldane's "therefore" here is highly questionable, and that it is neither put forward by Einstein himself nor established by Lord Haldane. If we remember that time and space are for Einstein "physical conceptions"—that time is for him "time interval" and space "space interval (distance)"[5] while the "situations and conditions" are throughout also physical—and if also time and space are given their fuller philosophic significance,[6] it is obvious that this "therefore" is merely taken for granted. We cannot pass thus directly from Einstein's physical concepts to time and space in any philosophical sense; and the philosophic principle which Lord Haldane's volume throughout maintains is true or false wholly independently of the results of scientific relativity.

[1] *Cf.* p. 155 on thought and feeling.
[2] *Ibid.*, pp. 158, 197.
[3] *Op. cit.*, p. 155.
[4] *Ibid.*, pp. 39, 83, 88.
[5] *Theory of Relativity*, p. 30. *Cf.* p. 28, "relativity of conception of distance".
[6] Unless this is done Lord Haldane's chapters sink into a mere epitome of Einstein, instead of an interpretation. This wider significance again is placed beyond doubt by the passage just quoted—"we distinguish sensations in relations of time and space"—which cannot, at that level, be "physical conceptions".

For what is the essential issue here? It is that reality must become known under concepts—that knowledge, or experience, or mind, is "foundational of reality"; and I fail to see that scientific relativity has the slightest bearing upon this principle. For it is not concerned with categories *as categories;* it introduces no new ones and it dispenses with none of our earlier ones;[1] it merely accepts the basal categories of space and time and then renders more precise their application to natural phenomena—corrects our measurements of time and space intervals, our estimates of mass and energy. If, at the outset of experience, "sensations present themselves as we distinguish them, in relations of time and space," then science, for its more special and limited purposes, *must* presuppose them; but its increased accuracy in the employment of its fundamental categories is altogether independent of their nature and validity *as* categories. Apart from its refinement and exactitude scientific relativity has in this respect no more philosophical importance than had—to choose an extreme but emphatic instance—the transition from the moons of our ancestors to our calendar months.

(5) The fallacy of any identification of time and space, philosophically considered, with "physical conceptions" becomes further apparent if we view the question from a different angle. This term, from the scientific standpoint, is perfectly justifiable, since science is in the main concerned with concepts. But if we take this to be unqualifiedly true, and if we proceed to argue that space and time are solely concepts, then our philosophy must (in this respect at least) become a merely conceptual Idealism—a "ballet of bloodless categories". Science is preserved from this by its inseverable connexion with perception. "The concept (simultaneous)" remarks Einstein, "does not exist for the physicist until he has the possibility of discovering whether or not it is fulfilled in an actual case . . . he can decide by experiment . . ."[2] Upon this underlying perceptual basis concepts may be reared as high as we choose, even until time and space are wholly dispensed with;[3] but they must, in some way or other, be included within our original content. This indispensable

[1] Unless every fresh mathematical refinement is a "category".

[2] *Theory of Relativity*, p. 22. *Cf.*, "The introduction of mathematical conceptions must be postponed as long as possible. Integration leads to physically significant results only because it corresponds step by step to some physical process" (Campbell, *Physics: The Elements*, pp. 422, 523; also *Nature*, 17th Feb., 1921, p. 804).

[3] "This arrangement does not even need to be such that we must regard x_1, x_2, x_3 as space co-ordinates and x_4 as a time co-ordinate" (Einstein *ibid.*, p. 94. *Cf. Reign of Relativity*, pp. 96, 97.)

condition seems to be completely ignored by Lord Haldane. Perception, we have already seen, is "chaotic and formless"; but further, "physics does not deal with bare sensations, but mainly with the coincidences of *events*, coincidences which are not immediately presented in experience".[1] This statement, as it stands, directly contradicts the very basis of the Theory, whose primary object is to correlate with absolute accuracy the coincidences immediately presented to perception.[2]

This misinterpretation of the rôle of perception leads in the end to a complete inversion of the structure of experience or of reality, which thus becomes a pyramid poised upon its apex. I have quoted already the passage (p. 197), "our world begins in sentience. Our sensations present themselves . . . in relations of time and space." But elsewhere a wholly discrepant account of the development of knowledge is given.[3] Here we start with "bare awareness of change, in which space and time have not yet been discriminated, the activity out of which we build up our conceptions of them. We approximate to intervals neither spatial nor temporal (which) express what lies at the foundation on which we build up our ideas of space and time as relations"; and thus "intervals, neither spatial nor temporal," intervene between the primal sentience and the later spatio-temporal relations. This seems to be a direct reversal of the actual course of mathematical procedure, both historically and logically; for this starts from concrete perceptual experience, and reaches its non-spatio-temporal concepts simply by carrying abstraction farther and farther. These concepts, having been thus attained, certainly constitute a basis for further construction. But to regard them as "the foundation" from which "knowledge is rendered at a later stage particular, by observation and experiment" (p. 98), is a completely different thing; it is merely to reverse the process by which they were first of all obtained.[4] This is evident from the statement (p. 98), "the characters of the relations which we call space and time arise from the movements of bodies changing their situations . . ."; for these aboriginal

[1] *Reign of Relativity*, p. 47.

[2] "Coincidence is the only exact mode of observation and lies at the bottom of all physical measurements" (Brose, *Theory of Relativity*, p. 14). But in this connexion it seems to me that philosophy cannot altogether disregard Einstein's treatment of truth (*Theory of Relativity*, pp. 2, 124).

[3] P. 96. Abridged, but I think not distorted.

[4] Prof. Eddington also seems to have adopted this fallacious method. *Cf. Journal of Philosophy*, 21st Oct., 1920, p. 609.

"movements, bodies and situations" are either all implicitly spatio-temporal or they are meaningless.

(6) An analogous misreading of the character of mathematical abstraction dominates Lord Haldane's treatment of gravitation and inertia, and leads him first to confuse with one another two distinct principles of equivalence—(*a*) of inertia and gravitation, and (*b*) of gravitational and accelerated motion—and secondly to set up an unfounded contrast between Newton's first law of motion and Einstein's law of gravitation.

The Principle of Equivalence proper holds true in itself only as a purely kinematical abstraction; it expresses an equivalence (for certain purposes) of motions, and nothing more; or postulates "that phenomena in a field of gravitation and in a field produced by acceleration of the observer" are equivalent.[1] It certainly does not justify the categorical statements: "of force physicists know nothing. The notion of force had lost meaning for physicists."[2] Such a view is of course permissible, but it is not incontestably implied by the general Theory, except, as I have said, as a kinematical abstraction.

Dr. Campbell, *e.g.*, denies "that force is properly regarded as a derived magnitude at all; it is fundamental, as volume is fundamental";[3] while Einstein's references to forces are frequent. Even in his classical illustration of "the man in the chest," a "being begins pulling at this with a constant force";[4] but Lord Haldane, in the parallel instance on page 89, ignores both the "being" and the force, and thus loses sight of the essentially abstract character of the Principle, which, with the indispensable "if," is clearly presented on page 57.

But when we turn from this equivalence between gravitational and accelerated motion to the equivalence—or (perhaps better) identity—of gravitation and inertia, quite other concepts are involved. To be strictly accurate we should speak, to begin with, of gravitational and inertial mass; and mass, further, as interpreted in terms of energy.[5] From this standpoint their identity can, I venture to think, be established on

[1] Eddington, *Space, Time, and Gravitation*, p. 212. Like all other principles it has of course important implications.

[2] *Reign of Relativity*, pp. 57, 89.

[3] *Physics: The Elements*, p. 392.

[4] *Theory of Relativity*, pp. 51, 67, 80. *Nature*, 17th Feb., 1921, p. 783. *Cf.* Weyl, *ibid.*, p. 801: "pondero-motive force of the electro-magnetic field".

[5] Einstein, *Nature*, *ibid.* Brose, *op. cit.*, p. 21. *Reign of Relativity*, p. 57.

general principles quite independently of scientific relativity.[1] But whatever its true basis may be, it does not bring Newton's law into conflict with Einstein's.

In the first place, Lord Haldane's explication of inertia is seriously defective. This is, I think, the direct result of his repudiation of force. But in any case it is inaccurate to say that "a body remains at rest or goes on in the path in which it is moving in continuation of its actual motion".[2] A body remains at rest only when no force acts on it. I grant that we do not understand the nature of force; but that the state of rest here involved is strictly conditioned cannot thus be ignored. "Actual motion" again is continued only when rectilinear and uniform and (once more) under the action of no force. So that it is meaningless to say "acceleration . . . may be regarded as due either to gravitation or to inertia".[3] Given a force, the acceleration is determined by the inertia,—a case wholly different. "The same quality of a body manifests itself according to circumstances as inertia or as weight";[4] but here Lord Haldane has left the "circumstances" out of account altogether.

Similarly there is no conflict, such as seems to be implied on page 98, between Newton's law and Einstein's. Newton's law holds in a Galilean domain, wherein "isolated material points move uniformly and in straight lines";[5] and upon it, as a foundation, Newton based his law of gravitation. This now proves to be merely approximate, not because his first law is not true, but because he did not anticipate that "almost all physical quantities are functions of velocity,"[6] and that therefore mass and distance vary with systems of reference.

All this implies, finally, that what philosophy has to recognise in scientific relativity is simply an increased degree of accuracy due to the greater exactitude of physical concepts; which means, again, that little, if indeed anything, truly metaphysical is in question at all. The established conclusions of the Theory will contribute to the future Philosophy of the universe; but this involves neither a complete revolution in fundamental concepts, nor any substantial advance in the Idealist view of experience and knowledge. "Change in standpoint," once more, "gives no change in the actual".

[1] Mach has advanced a view of this kind, but I have not read his work.
[2] *Reign of Relativity*, p. 89. [3] *Ibid.*
[4] *Cf.* again the chest illustration, *Theory of Relativity*, chap. xx., and p. 65; also *Reign of Relativity*, p. 57.
[5] *Ibid.*, p. 100. [6] Richardson, *Electron Theory of Matter*, p. 322.

IV.—A THEORY OF PERSONALITY.

By Wincenty Lutosławski.

I. Self and Personality.

My first elementary knowledge of myself, when I began to distinguish myself from others, was the ordinary representation of a body moving in space, and animated by mind. Mind and body, however, were not yet clearly distinguished from each other, and activities of the mind were credited to the body or to its parts, as when we speak usually of a feeling heart or of a thinking brain. Many educated persons, and even distinguished thinkers, if their thought is chiefly directed towards material appearances, have no deeper knowledge of themselves than children.

Moral pain, the habit of contemplation, and, to a certain extent, also the study of the history of human thought and action, have led me, like many others, to distinguish more clearly the body from the mind, and to recognise the thinking and feeling subject from within as a spiritual being, as a real thing, or as philosophers say, a substance, and as the first original model of every conception of other existing things.

The great difficulty of expressing in any foreign language the particular conception of one's own reality has been experienced by those who, writing in English on Sanskrit thought, used the term Atman, as having another meaning than the Self, the Ego, the spirit, or the soul. In the Polish language we have the peculiar term *jaźń*, which also has no exact equivalent in English, though it may be rendered by Self. Here I shall use the term Self in the meaning of the Polish term, in order to avoid the introduction into an English text of a foreign word containing two letters unknown to the English alphabet. But this Self, as I understand it, is much less abstract than the Self of English writers or the *Atman* of Sanskrit thinkers. It is the full reality of a conscious subject, with all his thoughts, feelings, wishes, and

perceptions. All these contents of consciousness are events happening in me, in my own Self, not in my body, though I perceive appearances through the organs of my senses, and though I may will and produce external events in the material world of appearances, perceived through the senses. I remain myself despite all the variations of the contents of my consciousness.

A further step in the development of my knowledge of myself was the absolute and indestructible certainty of the inevitable persistence of my Self after the dissolution of my body. This certainty is different from mere beliefs as well as from inferences obtained by discursive reasoning. Belief in immortality is based on the personal testimony of those who know somehow that they are immortal. This knowledge is not similar to any other knowledge of facts or relations. In my experience, as in the spiritual experience of many others, it has been a sudden revelation (*ἐξαίφνης*, Plato, *Symp.*, 210*e*), coming after years of mere thinking on this matter, and of believing the testimony of others. I knew at that time (1885) most of the arguments for immortality advanced by thinkers and believers. But they did not then appear to me to be definitively convincing. Suddenly came immediate intuitive certainty, with the evidence of mathematical axioms, and it came to stay. My certainty that I am and shall be, whatever happens to my body or my mind, since it came, has never disappeared for a single moment, neither in the waking state, nor in dreams, neither in health, nor in illness.

I know from books that this sudden discovery of the absolute existence of one's Self as a Being independent of the body has been made by many others. If it is genuine it leads to a permanent and continuous consciousness of one's indestructibility. It has been called by the Polish philosopher, Wroński, *autocréation*, as it starts a new relation to one's body and mind, different from the mental attitude of the vast majority of men having mere beliefs, or endeavouring to reach a knowledge of real existence by reasoning.

In 1894 I had a conversation on this subject with Prof. Henry Sidgwick, who was so much impressed by my attitude, that he attempted to give to the readers of MIND (October, 1894) an account of this talk (*A Dialogue on Time and Common Sense*). But he admits himself that when he tried to write down this talk he had forgotten too much of it, so that he had to allow imagination to supplement the defects of memory "trying to preserve the general attitude of our minds towards each other". But to me his account of my attitude proves that he did not understand me at all, and I was amazed

at the possibility of such a complete misunderstanding.[1] If such a highly intelligent thinker as Henry Sidgwick, with his wide learning, could not understand a very common young man, full of his discovery of concrete real existence, then there is no hope of a general recognition of this experience, limited as it is to a minority of psychologists and theologians.

The majority of my readers will consider my discovery as a subjective illusion. But a persistent illusion, which lasts throughout life, is at least a psychological fact, and deserves the attention even of those who never had it. There is a great difference between the mental attitude of those who have such an absolute and lasting certainty of their own existence—(it seems to have been reached already by many disciples of Pythagoras and Plato)—and those who have no such certainty.

However rare this certainty is, it is not yet the last stage in the development of the intuitive knowledge of one's Self. The final consecration of this continuous and permanent consciousness of one's real existence is the further discovery of our pre-existence. Pre-existence does not follow as a rational consequence from immortality. Many believers in immortality shrink from pre-existence as from a terrible heresy. Arguments in favour of pre-existence are less decisive than the usual proofs of immortality. There is a widely spread prejudice that pre-existence has been condemned by the Roman Church, and the great majority of Catholic priests believe in this condemnation, for which, however, I could not obtain any proof from the most eminent professors of the Catholic universities of Louvain and Fribourg.

For me the subjective certainty of pre-existence is parallel to the certainty of immortality, and it is not a conclusion from any line of argument. I know that I have existed before this life, either on earth as man, or elsewhere in similar conditions. This knowledge is for me not less evident than any mathematical axiom, and needs no proof. It is the foundation for many other convictions, and the explanation of many difficulties ; it does not contain the slightest difficulty for my mind. I reached this certainty later than the certainty of immortality, but since I reached it, more than thirty years ago, I have never lost it for a single moment. And so far as I know the number of those who share this certainty is rapidly growing on earth. All the great Polish poets and thinkers during the nineteenth century had it: Wroński,

[1] He did not even understand that it was not fair to call a Pole a Russian professor because he taught at a Russian university.

Cieszkowski, Trentowski, Towiański, Mickiewicz, Krasiński, Słowacki, Goszczyński, Wyspiański—to mention only the greatest.

My eternal existence as a true Self has its experimental limitations owing to my close connexion with a body. It is not certain that a Self must always be incarnated in a body, but it is highly probable that each human being has experienced many incarnations. The incarnated Self lives in a set of conditions; and personality implies the sum of these conditions. A person is an incarnated Self considered in all its relations to the external world and to its own past and destiny. A person owning body and mind depends for the conditions of its existence on the total heredity of the chosen body and on the acquired experience of the incarnated Self. Whatever I have ever had as contents of my consciousness may be under certain circumstances recalled to my memory; and, even when forgotten, the past experience of my Self has an influence on my present state and on my ability to feel, to think and to act in a certain way, which characterises my individuality. Thus my actual condition is due to a double line of influences: the succession of bodies from which descends my body, and the succession of mental states which my Self has experienced in past incarnations.

The Self is not by itself a person: it is only so in given conditions of dependence on a part of the external world, with the possibility of influence on the immediate environment. The person has therefore not the same permanent identity of substance as the Self. Each Self creates by incarnation a succession of persons. Even within one incarnation, despite the continuity of one and the same body, the same Self can create different successive persons, like an actor who plays different characters on the stage of a theatre. Something of this kind happens in real life whenever an act of will or an external influence causes a thorough change in the personal conditions. Thus a girl sometimes completely changes her personality by marriage, especially if she marries very much above her rank, or if she gives up a creative original activity in order to devote herself to her husband and her children. She remains the same Self, but many personal conditions, as for instance name, wealth and position, are changed.

Not all the personal conditions of the same Self can be thus changed within one incarnation. For instance we cannot change our physical sex, nor can a thoroughly stupid person become clever or wise. A great poet like Dante or Shakespeare could not easily become a truly great statesman, though both have said many true things on statesmanship. We

have seen recently an eminent Polish musician fail completely when he attempted to rule his country as Poland's Prime Minister. Sometimes the same man succeeds in living several different lives in the same incarnation, as for instance a gifted painter who during the war became a famous general.

Personal existence has a variety of conditions which determine the activity of the Self. The classification and definition of these conditions or marks of personality is an important problem of metaphysics, and if we wish to understand thoroughly personal existence we must distinguish what depends on the essential quality of the Self from what is given to that Self by its particular place in space and time and by its relations to other Selves and persons. A complete characterisation of a person is only possible if we are able to enumerate all the conditions or relations which cause this person to differ from all other persons. Therefore we have to ask what makes human beings different from each other and how many kinds of human existence are possible? The answer to this question will lead us to understand the causes which determine the individual destiny of each Self in each incarnation and the succession of different persons animated by the identical Self.

A correct classification of human conditions or of the marks of human personality has, besides its mataphysical importance, also moral and social applications. It enables us, for instance, to judge the value of the current doctrine of class warfare. Whether workmen and capitalists are really different classes of mankind depends on what principle of classification we adopt and what differences we consider as the most important.

The conditions of personal existence depend either on the Self and its past experience or on the body and its inheritance. They may be permanent, as for instance sex, or variable as for instance age, wealth, and health. Some of them appear to be innate, as for instance genius, other conditions seem to be the goal of many efforts, as for instance education, or moral perfection.

A great variety of opinions is possible on the subject of the true classification of men, based on the distinction of the real conditions or marks of personality. I fail to find in English a quite convenient term to design these qualities or conditions of personal existence and I do not remember any attempt at their complete enumeration, definition, and classification. Whenever I have asked anybody in how many ways a human being may differ from others I have noticed that this problem has escaped the attention of the students

of human life. If I am mistaken, I shall be very grateful for the indication of such investigations. My own classification of sixteen chief marks of personality will be the final outcome of this inquiry into the meaning which each particular mark, condition or quality has for individual destiny.

II. Sex as a Mark of Personality.

The most obvious difference between human beings considered in their variety is the difference of Sex; the first question to be asked about a person whose conditions of life we wish to understand thoroughly, is whether it is a man or a woman. A general theory of personality must therefore explain the true meaning of sex.

At first sight it might appear that the whole difference of sex depends only on the shape and function of the organs of reproduction. Reproduction being one of the many functions of life and not inevitable in every individual life, it would seem that sexual difference is not essential, as many human beings live without ever using their organs of reproduction and without even being aware of them. When I pray or study, I seem to be simply a human being, neither man nor woman. The most properly human activities are common to both sexes. There is not a single thought, no kind of emotion, no ideal of human activity, which could not be common to persons of both sexes; and every possible experience of one sex can be fully understood and assimilated by the other sex. The very existence of reproduction can be entirely forgotten for weeks, months, and years by those who are engaged in intense intellectual work or in spiritual contemplation of the highest realities.

From such a point of view the sexual difference seems to disappear, or to be of the same secondary importance as any other purely physical difference—for instance, the difference of height or weight or muscular strength. For certain special purposes all these differences are very important, but they are not essential in the sense of a general classification of the marks of human personality. Is not sex also such a difference, which is only important for a special purpose, that of reproduction? We may ask besides whether reproduction has to be looked upon as an absolute and general necessity or merely as a temporary remedy for the imperfection and decay of our bodies, due to an ancient calamity known as the fall of man or original sin in our religious tradition?

Such questions might arise if we limit our knowledge of sex to the facts of reproduction, which in themselves are not

peculiarly human, as there is such a close analogy between the reproduction of human beings and that of animals. But outside the narrow limits of biology there is a vast field of sexual experience which is properly human and we cannot fathom the mystery of sex without referring to that wider spiritual experience. One of the most manly men in human history, Dante, met a woman a few times in his life, and described his experience in his *Vita Nuova*. Much later, towards the close of his life, in the ripest and greatest of his works, he still considers Beatrice as more closely related to him than his wife, by whom he had several children. His marriage appears to him, when he speaks to the world at large and to the most remote posterity in his immortal poem, as an infidelity against his first love.

This contrast between the spiritual reality of love and the material link of marriage is not an isolated experience peculiar to the great Italian poet. It permeates the whole of human life and literature and it shows that sexual experience is by no means limited to the facts of copulation and reproduction.

Moreover, on the highest plane of spiritual life, in the mystic experience of the immediate contact of men and women with their Creator, again the sexual difference manifests its power, even when we compare the confessions of men and women so closely related to each other as, for instance, Theresa of Avila and John of the Cross. Both being equally indifferent to physiological reproduction they still remain male and female, and every page written by one or the other of these great Carmelites is easily recognised as masculine or feminine. Both agree with Solomon and other mystics in their habit of using images taken from sexual love in order to explain their mystic experience of divine love.

If we look at the widest range of sexual experience, including not only what has found an expression in literature or art, but also the infinite variety of individual destinies shaped by sexual relations or impressions, if we take into consideration that there are many other sexual relations than the intercourse between lovers or between husband and wife, then we are led to the conclusion that sexual onesidedness is one of the most fundamental limitations of Self, constituting its personality, and that every human being remains under the spell of this strange onesidedness throughout life, even though he be entirely unaware of it.

The body being an expression of the soul, a symbol of spiritual reality, the bodily sexual difference corresponds to a fundamental spiritual difference and cannot be limited to the

single function of reproduction. If our knowledge of the human body were deeper, even a single hair taken from any part of the body would betray the sex of the person to whom it belonged. The difference between the organs of reproduction is only more evident and known because we have had special motives to study it. But every other organ in the human body will manifest its sexual character when physiological investigation has gone far enough. For the present we are unable to define these sexual differences otherwise than, perhaps, by certain averages of the dimensions of the whole body and its parts. Every dimension may be found in both sexes, but the average will be different for each sex.

In order to reach a definition of the spiritual aspect of sexual difference we have first to decide whether we consider this difference as a permanent state of the innermost Self, or as only a condition resulting from incarnation. Am I a man because my pre-existent and immortal Self received from my parents a masculine body, or have I myself built a masculine body out of the matter furnished by my parents, because I am a masculine Self? And if I am a masculine Self, is this masculinity something that can never be changed, or only a passing phase of my spiritual existence?

Such questions are not likely to be asked by everybody. Most men do not care to know such things or they do not admit the possibility of such knowledge. Most of us have not even a clear reminiscence of our own past lives and it is still more difficult to ascertain the past lives of others. Without such a memory how could we pretend to know the eternal destiny of our Selves and the mystery of sexual differences in body and mind?

We must here follow the same method as in every other investigation of reality. Every science is based on intuitive guesses which are verified by some kind of objective experience. Conformity with the experience of our senses is the test of physical hypothesis. But there is a vast field of spiritual experience not less evident than the experience of the senses. Dante's love of Beatrice was to him a fact not less than the colour of her eyes, though everybody could see the colour of those eyes, while very few men can understand such a love or have themselves experienced similar feelings.

It is true that only very few human beings obtain an absolute certainty, first, of their immortality, then of their pre-existence, and finally of their sexual destiny. But an intuitive certainty as to their sexual past is possible for those who earnestly strive to know the truth about themselves. I

know for certain, and with the same degree of unchanging certainty as I know of my immortality and pre-existence, that my actual masculine sex is not imposed upon me from without by the conditions of my conception in this particular incarnation. It is my own work and corresponds to a pre-existent state of my own Self, which, however, was not always the same; and I know that in my eternal past I have experienced both sexes, though certainly not in such alternation that after each masculine life a feminine life should be the rule. I do not know whether I need ever be a woman again, but I am certain that I have been many times a woman. There is nothing in the life of woman totally foreign to my own Self.

Such a subjective certainty is a psychological fact which, as the testimony of a single individual, might be a personal illusion. But if it is a genuine and spontaneous certainty it is as permanent throughout life, when once reached, as the similar certainties of immortality and pre-existence.

I distinguish the genuine experience of such certainties from the ordinary belief in the testimony of others. Such beliefs are opinions which may be imparted to suggestible people but also lost by them. The genuine intuition is a permanent acquisition reached by meditation and contemplation which reveal to us the mystery of our own real being. A definite knowledge of one's self is the metaphysical explanation of the possibility of every other knowledge of anything else, and it stands as open as the evidence of the senses to all those who seriously endeavour to attain it. For those who have no such experience the testimony of one who has it is simply a hypothesis which can be tested by the wider objective experience of sexual life.

Let us, therefore, formulate this general hypothesis which will help us to account for the facts of sexual life. Each Self experiences alternately, in phases which last much longer than any single human life, two opposite spiritual states which within our earthly existence manifest themselves in bodies of opposite sex. These alternate phases of the spirit follow each other according to an inward determination, as the consequence of some original deviation from equilibrium, like the oscillations of a pendulum. This original deviation is what is called the fall of man. It has been brought about by ourselves. At each stage we may be more or less distant from equilibrium, and the process which tends towards the opposite state goes on during incarnation, so that a male spirit, having built a male body, may in its inward growth during the same incarnation reach spiritual femininity, and

the reverse. This explains how it happens that we know women with a male spirit and men similar to women.

The difference of sex is known to us by intimate experience and cannot be stated in terms of any other order. There is no virtue or vice peculiar to one sex exclusively of the other; whatever can be said of men or women in general will in particular cases apply to the opposite sex. Even the definition of masculinity as predominance of activity or of femininity as predominance of receptivity will not exactly fit all the individual cases. There are very active women and very passive men. Neither is courage the monopoly of man nor purity the privilege of woman, though great courage is more frequent among men and perfect purity among women. The tendency to define sex by something else or to explain the sexual difference by a combination of other qualities is not compatible with a full and clear understanding that sex is a fundamental mark of personality, rooted in an essential state of the incarnating spirit.

The sexes are really different and opposite classes of mankind. There is an agelong opposition between them and a real warfare, the most genuine class warfare in human life. The predominance of muscular strength in primitive social conditions has kept women terrified and enslaved. Every growth of civilisation means emancipation of women from sheer masculine brutality and increases their influence on social and political life. Women, when they have obtained in every respect equality of opportunities and of rights, will still remain women and they will not avail themselves of all their victories. For ages they have freely devoted more time and industry to music and still they have not produced a single musical composer equal to the greatest male musicians. Even the most feminine musical genius (Chopin) has taken a male body for his incarnation. If our parliaments were filled with ladies, it is not likely that a great statesman would arise out of their ranks. Whenever a spirit comes to this life with original creative faculties, he appears as a male. Genius is essentially masculine and even great talent is found oftener in men than in women. We might explain this by the actual social condition of mankind, in which men still prevail.

If, however, there is somewhere a world ruled by women, it is not at all likely to follow the masculine fancy of Aristophanes. On the contrary such a world would be probably a better world than ours. Women generally are better than men. They are less selfish; but they have also less in them of their own and they need fecundation in body and mind by men.

Sexual attraction between men and women, from the lowest concupiscence and carnal passion to the highest perfection of pure love, works for the diminution of sexual one-sidedness. Carnality exhausts itself in man by loss of virility, in women by maternity, in both sexes by disease resulting from wrong indulgence. In love the lovers impregnate each other with their opposite sexuality. Men acquire the feelings of women and women masculine capacities. Widows have often continued the work of their deceased husbands.

In the long struggle between the sexes there is one great feminine victory due to Christianity: the ideal of indissoluble marriage. If two beings of opposite sex, with the full understanding of what it means, join each other in a truly indissoluble union, they acquire a peculiar sexual experience, not accessible to those who marry on the understanding that they may divorce. Dissoluble unions are inferior, not only morally but also in the sense of mutual absolute possession (and complete satisfaction of all the senses), to true indissoluble marriage.

The modern agitation in favour of divorce is a misguided aspiration towards the same ideal of indissoluble marriage. People want to dissolve such unions as are not true marriages, in order to enable everybody to meet the true partner for a really indissoluble marriage. But they are not aware that by overthrowing the public sanction of absolute indissolubility they destroy precisely what they desire to obtain. A divorced woman can never fully believe in the definitive character of a new union, as those believe who take the risk of a solemn affirmation and obligation of indissolubility, without any possible recourse to law in order to justify or mend their mistakes.

The indissolubility of marriage was unknown in pagan antiquity. There remains even now a higher stage of indissolubility to be reached, beyond the claims of the Christian Church. The Church sanctions a kind of polygamy in the successive marriages of widows and widowers. Strict monogamy and absolute indissolubility would give only one wife to each husband in each life, as death should not be considered a motive for divorce. We may go even one step further and imagine the same feminine Self associated as wife to the same masculine Self in successive lives. Finally such a close and eternal relation of two spirits might exist that they should have been to each other alternately husband or wife in successive incarnations.

This is the logical development of the ideal of strict monogamy and absolute indissolubility of marriage. Such a lasting

link explains the perfection of certain marriages. A truly indissoluble marriage excludes not only every infidelity, even previous to the first meeting of the lovers, or posterior to the death of one of them, but also every quarrel or serious dissension. If such a perfectly indissoluble union did not exist on earth, it would still remain the dream of all true lovers. They wish to share mutually all their thoughts and feelings, to guess rightly each other's minds, and to meet naturally and spontaneously each other's wishes. Such perfect love has not only been imagined by poets, it is the final goal of human sexual experience.

But the more we progress in this direction of absolute perfection of love and indissolubility of marriage, the less can we expect such spiritual realities to be governed by external legislation or enforced by the decrees of our judges. The law cannot ensure love, and divorce legislation cannot annul truly indissoluble marriage.

With the increasing perfection of social life public opinion will esteem more and more those who commit no mistakes in their sexual choice. But those unhappy beings who have not yet reached such a level of sexual discrimination will in such a society be able to get rid of insupportable partners without shocking proceedings, by mutual consent and the tacit acquiescence of the wise.

We cannot expect such an acquiescence as long as the mistakes are frequent and the consequences cruel to children and other innocent victims in a still very imperfect society. We are responsible for all the consequences of our mistakes. In each particular case many things should be carefully considered before the parents of a child dare to deprive it of all that the common life of a family implies.

Endurance of an imperfect union may be the best preparation for the final discovery of the right partner in a future incarnation. Those who have once made a mistake are particularly liable to commit other mistakes and therefore no safer advice can be given to them than the exhortation to endure what they have brought upon themselves. Those few who are certain of having discovered their true and definitive destiny will neither ask advice nor listen to it.

The doctrine of counterparts, as attributed to Aristophanes by Plato in the Symposium and later popularised by Swedenborg and Thomas Lake Harris, is not a passing fancy. It has returned again and again with obstinate insistence since the tale of Tristan and Isolde was first told. Its consequences are very serious; for, if each of us has only one true counterpart, we are bound to give up every other union, whatever

the consequences may be to us or to others. This is the romantic conception of love, justifying every breach of the law and every infidelity to pledged faith.

On the other hand, if love is not such a transcendental and absolute reality, if true marriage depends on the mutual goodwill of any two persons who understand the rules of the game, then there is no need to break any existing bond as long as we can improve it, and it would be silly to hope that a future union will be happier at the cost of an avowed past failure. This is the classical doctrine which condemns the romantic view as a perverse invention of the evil spirit. Social peace and moral order seem to be safer in an unromantic world, where the stability of sexual unions does not run the risk of sudden revelations which overthrow every existing link and obligation.

According to the current view the classical doctrine is Christian and romantic madness is pagan. But the original classical marriage of Greek or Hebrew antiquity has been always essentially dissoluble, while indissolubility has been introduced into the marriage laws by Christianity; and it is nothing else than the legal expression of the romantic craving for absolute union. Romantic love is the spiritual justification of Christian marriage. Christianity has established as universal law what had been the highest voluntary experience of exceptional lovers. The fulfilment of the Christian law is humanly possible only under the condition of romantic love. The miracle of such a love has been discovered by mediæval poets and confirmed by such enthusiasts as Swedenborg or Thomas Lake Harris. A single example of positive experience is more decisive than thousands of failures which appear to contradict such experience. Two lovers who are certain that they were made by God for each other and for nobody else, are more reliable witnesses than any number of Don Juans who have sought their counterpart in vain and have still gone on believing in final success against their own experience.

But even if we grant that such reliable witnesses exist, their testimony does not justify a sweeping generalisation. They may be very rare exceptions and are likely to be such exceptions, for perfect love can exist only between perfect beings at a very high stage of personal development. Such perfect beings will not easily break existing obligations even if they have made a mistake in marrying the wrong person.

For the generality of mankind there is nothing lost if everybody endures what he has brought upon himself by his own free decision. Those exceptional beings who are fit to have a true

counterpart are not likely to be deceived by rash decisions into unholy unions or they will find a way out of such a wrong union without doing harm to anybody.

Thus we can conciliate the classical and the romantic view of love and marriage. Classical marriage, if faithfully kept, prepares romantic love in a future incarnation, or is the outward form of an existing romantic love.

The difference of sex influences also other human relations besides love and marriage, namely friendship, fatherhood, motherhood, and brotherhood. There is the possibility of pure friendship between persons of different sex, which will not lead to exclusive love and will still be a feeling different from friendship between persons of the same sex. The full growth of such friendships free from temptations appears to be conditioned by the experience of true exclusive love which feels no jealousy. Only those who have found their love can peacefully enjoy innocent friendships with the other sex. Otherwise every such friendship is threatened by the sudden revelation of love which spoils its purity.

The real differentiation of sexual love and sexual friendship presupposes the emancipation from superficial sensual attachments which are not exclusive. There is a succession of degrees in sexual experience which starts by animal carnality and ends in true love distinguished from pure sexual friendship. That so many men still disbelieve in such friendship proves only that they are equally ignorant of true exclusive love and see in every woman a possible mistress.

The relation between father and daughter or mother and son implies true friendship and something besides which is sexual fatherhood and sexual motherhood. A father loves his daughter otherwise than his son, but such a differentiation of sexual feelings is the ripe fruit of a long growth of the soul.

Also the relation between brother and sister differs from the brotherhood prevailing between persons of the same sex. No definition of these feelings is possible and very few individuals experience them fully. They are not a necessary consequence of the common origin of two persons from the same parents, as physiological brotherhood does not necessarily imply spiritual brotherhood, and this last is possible also without consanguinity.

The influence of sex permeates not only all personal relations between persons of different sex, but also every manifestation of human activity. Men and women are able to do the same things in a different way and we require a wide experience of life with a deep consciousness of sex to

appreciate this diversity, which confirms the hypothesis that sexual difference has its root in a pre-existent state of the Self and not in the structure of our bodies.

The form of the body is a symbolic expression of those spiritual realities which appear as masculine expansion and feminine receptivity, or virile strength and virginal beauty. There are degrees of sexuality in body and mind and a person may be more or less manly or womanly, in spirit as well as in the body. The body does not always correspond exactly to the spirit, because we have such bodies as are the expression of our spirit at the time of conception, with the limitations imposed by the chosen ancestry. The spirit builds the body out of the blood furnished by the parents and every builder is hampered by the imperfection of the materials used.

Conception depends on a peculiar relation of three spirits, those of the parents and the incarnating Self. Only when true love unites the parents can a Self of the highest kind accept their body. Imperfect unions of selfish and carnal people furnish the opportunity for the incarnation of lower spirits. The emotional and spiritual attitude of the parents towards each other and towards God in their union has a greater influence on the character of their children than physical heredity. Parents who are aware of this may attract towards their bodies by humble prayer and faith, in unselfish devotion, the highest kind of incarnating spirits, who come down on earth not because they crave for sensual life, but because they wish and intend to serve and to help others by improving the conditions of human life on earth.

This incarnation of the highest spirits, of men of genius and of Saints, has been usually worked unconsciously by pious parents united in true love and guided by higher inspiration. Conscious striving for such a fecundation transforms deeply the marriage relation and may be considered as the highest human Art, as it calls into being not images or symbols like the other arts, but living persons, incarnated spirits. They receive a strong and beautiful body from their loving parents and they give them heavenly bliss; for there is no joy greater than the rejoicing of a father or a mother at their children's attainments, if their whole life was directed towards this goal.

How such a result can be obtained those who are united in a consciously indissoluble union for mutual help towards ideal perfection learn easily by claiming boldly from above the necessary inspiration and acting up to the light which is never denied to them. They will be guided from step to step in their endeavours; and every pair of lovers entering this

noble competition will be amply rewarded for their unselfish devotion and their repudiation of vulgar gratifications.

If our human sexual life is thus explained by the conception of a spiritual sexuality pre-existing to its bodily expression, there arises the difficulty of explaining how it is possible that sexual life extends beyond and below humanity, while we cannot credit animals with the spirituality of human loves. Sexual life in beings lower than mankind seems to throw a singular light on human sexual life which in external appearances sometimes resembles closely that of lower animals.

The only way out of this difficulty is the supposition that what we know as the evolution from the lower to the higher forms of the body is not a primitive process, but a consequence of a previous fall of the spirit. Thus though, in the history of our earth, life seems to have risen from animality to humanity, humanity is older in the universe than animality and there is truth in the tradition that the creation of angels has preceded the creation of man.

Therefore we are right in interpreting the sexuality of animals by human sexual experience, not the reverse. In every fecundation a spirit precedes the body and is builder of the body. The sexual difference in the animal world has the same fundamental meaning as in the human world, only heredity dominates much more the generation of animals, without excluding the possibility of feelings and strivings in animal consciousness which are akin to human experience and imply an obscure tendency towards the recovery of the lost equilibrium, a tendency which is at the bottom of the mystery of sexual differentiation.

The future equilibrium, as the last goal, need not be the same as the lost equilibrium or the starting point of sexual life. In this future equilibrium sexual difference may still persist; and the Catholic cult of the Virgin, which is also a manifestation of sexual consciousness in the believers, would thus find its justification.

Sex would be then the result of a *felix culpa*, which, however, for its atonement does not require the annulment of this duality of being, which is known to us as sexual life. The mere onesidedness of sex may be overcome otherwise than by the monotony of asexuality and the whole of human sexual experience would then appear as a device of God for the gradual extinction of our selfishness by showing us in the opposite sex an object of our most immediate and spontaneous love.

V.—DISCUSSION.

THE MEANING OF 'MEANING'.

Dr. Schiller's reply in the October Mind to my discussion in the July issue contains a number of misunderstandings and misstatements of my views which I feel it my duty to correct.

(1) I did not say that, in looking for the 'I,' what *my* "attention really fastens on is some obscure bodily sensation—if not the tension in his head muscles, then the rush of blood in his arteries": I said this is what Dr. Schiller's attention really fastens on when he thinks he has immediate experience of 'activity'—in this following James. For me, the 'I' is not one datum or feature of experience among others; it is *all experience de-objectified.* In perceiving, that is, a sensuous state (of sound, taste, smell, vision) is used as the sign of an object; it conveys the object only in the form of a 'meaning'; and it does so because we adopt the motor attitude appropriate to the object. Now at the moment of perception, being intent on this meaning, we cannot be aware of the sensuous state. That it existed at that moment, however, we learn in retrospection, when we consider that the meaning was brought before us only by the sensuous state used as a sign—in other words, that the apparent existence of the object was really the existence of the sensuous state or 'I'.

(2) Nothing could be more untrue, then, than to say that I make the ego an "illusion"; it is rather those who look for it in some single feature of consciousness, such as 'activity,' who are in danger of making it an illusion. Dr. Schiller says that 'activity' is not an observable object: but then what is his empirical evidence for it? Does he distinguish between things that are observable objects and things that are merely experienced? An ego that is a sensuous state can be *found*—in retrospection as the ego, and even in perception as the apparent existence of the object. Or is the fact to which he refers our general grasp of the situation, our sense of our total meaning, conceived as one and directive? I would point out that this is a *sense*—*i.e.* it has a sensuous state, however vague and difficult to classify, as its vehicle, and so conforms to my theory of the ego. I wish I could feel sure that Dr. Schiller is not trying to re-establish that conception of consciousness as a 'pigment' or 'menstruum' which James condemned in his article 'Does "Consciousness" Exist?' He seems to me to be drifting back from the strictly empirical psychology of James to something like a spiritualistic psychology.

(3) Nor can I admit that my sensationalist 'I' is less truly active than his quasi-spiritualist 'I'. Sensuous states, on my theory, are efficacious (it is only given-essences or 'meanings' that are not so); a motor attitude is necessary to constitute cognition, and to make the sensuous state convey a meaning; the 'I,' considered with reference to its consequences, is will: what excuse there is for labelling me an 'intellectualist' and a contemner of activity, I am unable to see. Unless it be that I do not let the will co-operate in determining the content of knowledge, but wish cognition to show me the universe as it is.

(4) Dr. Schiller says I consider only one case of meaning, "that in which an 'object' is said to 'mean so-and-so,'" and that I do not derive 'personal' meaning. The case I consider is not that in which an object means something else, but that in which *I* mean an object—as I have to do in order to think of it. How meaning can be more personal than this, I should like him to explain.

It may not be amiss to recall here that James discussed this question of the nature of meaning, in an article called 'A World of Pure Experience' (reprinted in *Essays in Radical Empiricism*), and developed a theory very similar to that which I defend. A couple of quotations will show this. "Suppose me to be sitting here in my library at Cambridge, at ten minutes' walk from 'Memorial Hall,' and to be thinking truly of the latter object. My mind may have before it only the name, or it may have a clear image, or it may have a very dim image of the hall. . . . If you ask me what I MEAN [small caps mine] by my image, and I can tell you nothing; or if I fail to point or lead you towards the Harvard Delta; or if, being led by you, I am uncertain whether the Hall I see be what I had in mind or not; you would rightly deny that I had 'meant' that particular hall at all. . . . On the other hand, if I can lead you to the hall . . . if in its presence I feel my idea, however imperfect it may have been, to have led hither and to be now *terminated* . . . why then my soul was prophetic, and my idea must be, and by common consent would be, called cognisant of reality. That percept was what I *meant*" (55-56). What is important in this passage is the non-existence of any special function of meaning—its non-existence *psychologically*, or as a datum of introspection, that is, for epistemologically I certainly do mean the object. When such a process of experiential conduction through intermediaries unrolls itself, says James, "*their starting-point thereby becomes a knower and their terminus an object meant or known*" (57).

I do not mean to assent unreservedly to this account of knowing or meaning, for (*a*) the intermediaries do not, as James himself observes, need to be actually passed through in order that the knowing relation may exist; (*b*) they do not even need to be capable of being passed through, in the form of experiences: as is shown by the fact that we can know or mean the past, or a

distant object as it is at this moment, or another mind. It is the actually existing physical relations between the object and our mind that enable us to mean it. Hence a visual sensation, whose sufficient resemblance to the object is guaranteed by the fact that it was called forth by stimuli from it, may mean or know that object provided it leads us to point toward it or to perform actions addressed to it; and perception requires to have no greater clairvoyancy or intuitive power than this. Meaning is not primarily and originally a relation of a mental image to a sensation; it is, in its earliest form, a relation of a sensation to the external object which it enables us to cognise.

(5) Dr. Schiller is impatient with me because I attempt, realistically, to account for meaning by means of relations to things outside the mind, and will not content myself, as he does, with merely describing the experience of meaning. If I understand him rightly, when he goes to Switzerland to climb, the mountains are a temporary hypothesis which is true because it works, but which ceases to be true when he returns to Oxford. Or, if he attributes to them a greater degree of reality than this (as I hope), then I have a right to consider his body and the relations between it and them in explaining how he can think of or 'mean' them.

Finally, may I say that it was not from any impulse of chivalry, as he suggests, that I rushed to the aid of beauty in distress in the person of Mr. Russell, but because all three of the learned disputants appeared to me to be, in one form or another, phenomenalists, and because, even after Dr. Schiller's two valuable papers, no reference (so far as I remember) to a possible bearing of my form of realism on the question had yet been made. I wished to maintain, against Mr. Russell, that there is no good ground for holding that mental images can signify to the mind things beyond themselves, but that sensations cannot do so; that, consequently, the distinction between sense-datum and sensation is a valid distinction. Dr. Schiller was well advised in raising the problem of the nature of meaning; it is admirably adapted to take us to the roots of things; but he must not be surprised if it turns out that physical objects are known by our 'meaning' them, and that how we can mean them is explained by certain relations between physical objects.

C. A. Strong.

VI.—CRITICAL NOTICES.

A Treatise on Probability. By J. M. Keynes, Fellow of King's College, Cambridge. London: Macmillan & Co. Ltd., 1921. Pp. xi, 466.

Mr. Keynes's long awaited work on Probability is now published, and will at once take its place as the best treatise on the logical foundations of the subject. The present reviewer well remembers going over the proofs of the earlier parts of it in the long vacation of 1914 with Mr. Keynes and Mr. Russell. From these innocent pleasures Mr. Keynes was suddenly hauled away on a friendly sidecar to advise the authorities in London on the *moratorium* and the foreign exchanges. Mr. Russell (like the foreign exchanges) received a shock, from which he has never wholly recovered, in learning that the logic books had been deceiving him by their reiterated assertions that "man is a rational animal"; and the *Treatise on Probability* was held up till this year.

The present treatise is essentially philosophical rather than mathematical, although it contains a fair amount of mathematics. It is divided into five parts. The first defines probability and discusses how far it can be measured. The second gives the fundamental theorems of probability in strict logical form. This part owes a great deal to Mr. W. E. Johnson, to whose magnificent work on this subject Mr. Keynes acknowledges his great obligations. Indeed the Muse of Probability seems to have fixed her seat at King's College, Cambridge, of which both Mr. Keynes and Mr. Johnson are fellows. The third part deals with the logical principles of inductive and analogical generalisation; and the fifth with the connected, but more complex, problem of inductive correlation or statistical inference. In between these two is sandwiched Part IV., which is entitled "Some Philosophical Applications of Probability". This is concerned with a number of historically interesting problems, and in particular with the application of probability to ethics. At the end of the work Mr. Keynes provides an admirable bibliography of books and articles on probability and kindred subjects.

In this review I shall try to give an outline of Mr. Keynes's theory. I shall not have many serious criticisms to make, because I am substantially in agreement with him, and where I am not persuaded by his arguments the subject is so difficult that I have little of value to suggest as an alternative to his views.

The fundamental thesis of the book is that probability is a rela-

tion between propositions, which may be compared with implication. When p implies q the belief that p is true justifies an equally strong belief in q. But there are numberless cases where a belief in p justifies a certain degree of belief in q, but does not justify so strong a belief in q as we have in p. In such cases there is a certain logical relation between p and q, and this relation is of the utmost importance for logic. But it is not the relation of implication. It is this other relation with which probability is concerned. This probability relation is capable of degree, since it may justify a more or a less confident belief in q. The typical probability statement is of the form "p has to q a probability relation of degree x". Implication may perhaps be regarded as the strongest probability relation, or better as a limit of all possible probability relations.

There is however a very important difference, which is not merely one of degree, between the implicative and the probability relations. There is nothing corresponding to the Principle of Assertion in probability. If one proposition implies another and we know that the first is true we are justified by the Principle of Assertion in going on to believe the second by itself, and in dropping all reference to the first. We can never do this in probability. We can never get beyond statements of the form "p has such and such a probability with respect to the datum q". Propositions are true or false in themselves, though we may need to know their relations to other propositions in order to *know* whether they are true or false. But probability is of its very nature relative. When we talk of *the* probability of a proposition this phrase is always elliptical, as when we say that the distance of London is 120 miles. We simply assume that the person to whom we are speaking will supply from his own mind the same data as we are taking. Two important consequences flow from this. In the first place, a proposition may be highly probable with respect to certain data and yet be false. Its turning out to be false makes no difference whatever to the fact that it is highly probable with respect to these data. Secondly, one and the same proposition may have many different probabilities at the same time, so long as the data are different in each case. In particular a proposition may be highly probable with respect to a certain set of data and highly improbable with respect to another set of data which includes the first set as a part. Thus, if the only fact that you know about a man is that he has recently swallowed arsenic, it is highly probable with respect to these data that he will be dead in the next half hour. If you afterwards get the additional piece of information that he has taken an emetic, the probability that he will die in the next half hour, on the combined data, is much smaller. Neither probability is in any way more "correct" than the other. This essential relativity of probability is absolutely fundamental, and most previous expositions have suffered by failing to grasp it.

To express these facts Mr. Keynes takes over a useful symbol from Mr. Johnson. He writes $q/p = x$ for "the probability of q with respect to the datum p is of magnitude x". Two questions at once arise: (1) Can probability always be measured? and (2) Why do we commonly prefer a probability with respect to wider data to a probability with respect to narrower data? These questions are dealt with by Mr. Keynes in two chapters in the first part.

(1) Mr. Keynes argues that there is no reason to suppose that all probabilities fall into a single scale. All indeed lie between certain truth and certain falsehood, but there may be innumerable series leading from the one to the other. It is only probabilities that lie in the same course that can be directly compared. Two different courses may cut each other at one or more points, *i.e.*, there may be certain probabilities which are common to several different series. When this happens there is a possibility of indirectly comparing two probabilities in different series by comparing both with one that is common to the two series. But, even when we confine ourselves to the probabilities of a single series, there is no guarantee that we shall be able to set up a consistent system of numerical measures for them. Not every series of comparable magnitudes is measurable. The mathematicians have naturally exaggerated the amount of numerically measurable probability in the world; and, when they came across probabilities that were not comparable, or, if comparable, not numerically measurable, they passed by and "thanked God that they were rid of a rogue". Probabilities are only measurable in the comparatively rare cases where we have a field of possibilities which can be split up disjunctively into exhaustive, exclusive, and equiprobable alternatives. This does happen in games of chance and in the "bag" problems in which mathematicians exercise themselves, but not in many other cases.

It must be noticed that this view of Mr. Keynes's is much more radical than the view that all probabilities are theoretically measurable, but that in most cases the practical difficulties are insuperable. Mr. Keynes points out that there is one and only one theory of probability on which the latter view is plausible. This is the Frequency Theory, which he proceeds to discuss.

There is something bluff and Anglo-Saxon about the Frequency Theory, which no doubt accounts for its extreme popularity with the Island Race in general and with Prof. Whitehead in particular. Moreover there is a real but rather complex connexion between probability and frequency by way of Bernoulli's Theorem; and the very narrow limits within which that theorem and its converse can be applied have been overlooked by most people, as Mr. Keynes points out in the later parts of the present work. Thus there are many excuses for accepting the Frequency Theory. Mr. Keynes has little difficulty in showing that, in the simple-minded form in which it appears in Venn's *Logic of Chance*, it is

unsatisfactory, and that Venn tacitly assumes in many places a sense of probability other than that which is laid down in his definitions. Prof. Whitehead's form of the theory, as might be expected, is a good deal more subtle. Unfortunately it is not easy to make out exactly what it is. Mr. Keynes states it in the way in which he has understood it from private correspondence, but admits that he may be mistaken about Whitehead's meaning. It is therefore hardly profitable for a third person to discuss this form of the theory. But it is open to a reviewer to point out what seems to him to be a fallacy in Mr. Keynes's arguments against the theory. Keynes argues that Whitehead's form of the theory shares with Venn's the defect that it cannot satisfactorily explain the fundamental axiom connecting the probability of a disjunctive proposition with the probabilities of its separate parts, *i.e.*, the proposition

$$(p \vee q)/h = p/h + q/h - pq/h.$$

On the Frequency Theory, as interpreted by Mr. Keynes, the datum h determines a certain class α of propositions of which p is a member, a certain class β of which q is a member, and certain classes γ and δ of which the propositions pq and $p \vee q$ are respectively members. The probability of p with respect to h is then defined as the ratio of the number of true propositions in the class α to the total number of propositions in this class. Similar definitions apply, *mutatis mutandis*, to the probabilities of q, pq, and $p \vee q$, respectively. He then points out, quite truly, that the question whether the fundamental addition-theorem mentioned above will hold at all depends entirely on what particular classes, α, β, γ and δ, the datum h does determine for the four propositions in question. So far I quite agree, and think that this is a very serious difficulty in the way of the theory in question. But Mr. Keynes then proceeds to tell us what must be the values of the classes, α, β, γ, and δ, if the equation is to hold. He says that δ must be the class of propositions of the form $p \vee q$, where p is a member of α and q of β; and that γ must be the class $\alpha\beta$ of propositions. It is very easy to make up simple concrete examples to disprove this; *i.e.*, to make up examples in which the fundamental theorem does not hold even when the classes of reference are determined in this particular way. But it is better to disprove it quite generally. It can be shown that the number of propositions in Mr. Keynes's class δ is $(\alpha)\,(\beta) - (\alpha\beta)/2 - (\alpha\beta)^2/2$. It can also be shown that the number of *true* propositions in this class is :—

$$(\alpha_\tau)(\beta) + (\beta_\tau)(\alpha) - (\alpha_\tau)(\beta_\tau) - (\alpha\beta)_\tau\ (\alpha\beta) + (\alpha\beta)_\tau^2/2 - (\alpha\beta)_\tau/2$$

where (α) = the number of propositions in the class α; (α_τ) means the number of true propositions in the class α; and similar meanings attach to the other symbols. If the fundamental equation

is to hold, the ratio of the second expression to the first must be equal to—

$$\frac{(\alpha_\tau)}{(\alpha)} + \frac{(\beta_\tau)}{(\beta)} - \frac{(\alpha\beta)_\tau}{(\alpha\beta)}.$$

It is quite obvious that this will not in general be true; and therefore that either Mr. Keynes or I have made some blunder in the algebra of classes. I am pretty certain that Mr. Keynes is wrong, but of course I may be wrong too. However this may be, the real force of Mr. Keynes's general criticism is not diminished, even if he has made an algebraical slip here.

If the measurement and comparison of probabilities be possible only in a few specially favourable cases it is peculiarly important to be sure what those cases are. This leads to the question: When may we judge two probabilities to be equal? And this leads us at once to one of the *cruces* of the Theory of Probability, *viz.*, the famous *Principle of Non-Sufficient Reason*, or, as Mr. Keynes prefers to call it, the *Principle of Indifference*. In the negative and critical part of this chapter Mr. Keynes found most of the work already done for him by Von Kries, one of the few writers on the philosophical side of probability who are really worth reading. Von Kries had already pointed out the absurd results which a light-hearted use of the Principle of Indifference had led to. He did indeed attempt to base on these a positive statement of the proper limits of the Principle; but I am relieved to notice that Mr. Keynes finds the precise upshot of Von Kries's positive theory as hard to grasp as I have always done myself.

By studying the cases where the uncritical use of the Principle of Indifference ends in absurdities Mr. Keynes elicits the following conditions which must be fulfilled if it is to be applicable. (1) The various alternatives under consideration must be capable of being put into the same form, *i.e.*, they must simply be different instances of a single propositional function ϕ. This cuts out the wild applications of the Principle to pairs of contradictory alternatives in which Jevons habitually indulged. The two alternatives "x is red" and "x is not red" are not of the same form. The first means that x has the colour red. The second certainly does not mean that x has the colour "non-red," for non-red is not a colour. (2) The alternatives must not be sub-divisible into other alternatives of the same form as themselves. Given that x is an inhabitant of Europe it follows that he lives either in Great Britain or in France or in Germany or. . . . These alternatives are of the same form, and so far all is well. But each of them is divisible into sub-alternatives of the same form as itself. The alternative that x lives in Great Britian is divisible into such alternatives as that he lives in England, that he lives in Scotland, etc. . . . It is by ignoring this condition that mathematicians who treat of geometrical probability so often reach different solutions of the same problem.

Subject to these two conditions Mr. Keynes states the Principle

as follows. The alternatives $\phi(a)$ and $\phi(b)$ are equally probable with respect to the data h, provided that h can be written in the form $f(a)\ f(b)\ h'$, where $f(a)$ and $f(b)$ are logically independent, h' is absolutely irrelevant to both alternatives, and $f(a)$ and $f(b)$ are the only parts of h that are relevant to $\phi(a)$ and $\phi(b)$ respectively. (There is a puzzling mistake in Mr. Keynes's symbolism on p. 60, § 21. He says: "It might be the case that . . . $\phi(x) = x$ is the only propositional function common to all of them" (*i.e.*, the alternatives). He cannot possibly mean this, for it is sheer nonsense that $\phi(x)$ which is a proposition about x should ever be identical with x itself. What he really means is simply that $\phi(x)$ might be nothing but $x=a\ .\ \mathrm{v}\ .\ x=b\ .\ \mathrm{v}\ .\ x=c\ .\ \mathrm{v}.\ \ldots$ where a, b, c, . . . are just proper names or other designations of the altern tives. Such a ϕ will not do. His re l point therefore is that the alternatives must be members of a class which is defined intensively, and not by a mere enumeration of its members.)

It will be seen then that all judgments of indifference involve judgments of irrelevance. We have to know what part of h is irrelevant to both $\phi(a)$ and $\phi(b)$ before we can see whether h does fall into the form required for the Principle of Indifference. These judgments of irrelevance are of fundamental importance in Probability, and no rules can be given for making them. In the end we have to come down to direct insight, just as we have to do in the end in judging the validity of any deductive argument.

Mr. Keynes makes one very important observation here on the dangers of symbolism. So long as we are dealing with mere a's and b's all that we know about them is that they are both instances of some ϕ. But the moment you substitute something definite, like Socrates, for a, and something else definite, like Plato, for b, you can no longer assume that the conditions for the Principle of Indifference still hold. The moment you know, not merely that you are dealing with a ϕ, but also know *which* particular one of the ϕ's you are dealing with, you may have fresh relevant information.

Having treated the conditions under which two or more probabilities may be judged to be equal Mr. Keynes turns to the question: "Under what conditions can one probability be judged to be greater or less than another?" Such comparisons can only be made directly when either (*a*) we have the same data, and one of the propositions whose probability is sought is a conjunctive containing the other proposition as a part; or (*b*) when the proposition whose probability is sought is the same in both cases, but the datum in one is a conjunctive which includes the data of the other as a part. Into the exact refinements that are needed here I will not enter. Mr. Keynes shows that, by combining cases (*a*) and (*b*), we can sometimes indirectly compare probabilities which do not fall under either rubric.

(2) The prolegomena to the measurement of probability are now completed, and we can turn to another most important question

which has already been mentioned. If there is nothing to choose in point of correctness between the probabilities of a proposition with respect to a wider and to a narrower set of data why do we prefer the former probability to the latter? Why do we attach more weight to the low probability of the patient who is known to have taken both arsenic and an emetic dying in the next half hour than to the much higher and equally correct probability of the same event relative to the narrower data that he has taken arsenic? This extremely puzzling question is attacked by Mr. Keynes in a chapter on the *Weight of Arguments*. I do not know of any other writer who has raised it except myself in the chapter on Causation in *Perception, Physics, and Reality;* though I do not doubt that Mr. Johnson has an elaborate treatment of it up his sleeve. Roughly speaking, any increase in the amount of relevant evidence increases the weight of an argument, though it may leave the probability unchanged or may decrease it. We have already seen an example of the latter; let us now consider the former. Suppose we start with a probability a/h. A new piece of evidence k may arise, and k may consist of two parts k_1 and k_2, one of which is favourably and the other unfavourably relevant to a/h. In that case it is possible that $a/hk = a/h$. Nevertheless the weight of a/hk is greater than that of a/h. Mr. Keynes discusses various cases in which weights can be compared; and he considers the relation between weight and what is called "probable error" in statistics. In general a big probable error is a sign of scanty observations, and therefore of a low weight for one's result. But this correlation is not absolutely invariable. I wish that Mr. Keynes had discussed why we feel it rational to prefer an argument of greater weight to one of less weight. I think that our preference must be bound up in some way with the notion that to every event there is a finite set of conditions relative to which the event is certain to happen or certain not to happen. So long as the evidence is scanty a high probability with respect to it does not make it reasonable to act as if we knew that the event would happen, because it is reasonable to suppose that we have only got hold of a very small selection of the total conditions and that the missing ones may be such as to be strongly relevant in an unfavourable direction. If the probability remains high relative to a nearly exhaustive set of data we feel that there is less danger that the missing data may act in the opposite direction. In fact, what we assume is that a high probability with respect to a wide set of data is a sign of certainty with respect to the *complete* set of relevant data.

This exhausts the main features of Part I. Part II. is largely the formal development of the fundamental axioms of probability. Much of it could be accepted by a person who rejected Mr Keynes's view as to what probability really is. The most exciting theorems in this part are due to Mr. Johnson, whose valuable conception of "Coefficients of Dependence" is introduced and explained. It is worth while to mention a very plausible fallacy in probable reason-

ing which is detected and dealt with mathematically by Mr. Johnson's methods. It seems plausible to hold that if k is favourably relevant to m/h and m is favourably relevant to x/h then k must be favourably relevant to x/h. It is shown here that this is not in general true; and the two conditions under which alone it is true are elicited. It is fairly easy to illustrate part at least of this fallacy by an example. The fact that a man is a doctor increases the probability that he will have visited smallpox patients, and the fact that a person has visited smallpox patients increases the probability that he will get smallpox. It by no means follows that the fact that a man is a doctor increases the probability that he will get smallpox. For this fact also increases the probability that he is properly vaccinated and that he will take reasonable precautions. And this of course decreases the probability that he will get smallpox. Thus we see that it is not enough that k shall be favourably relevant to something that is favourably relevant to x. It is also necessary that k shall not be favourably relevant to anything that is unfavourably relevant to x. The second condition is more subtle, and I cannot at the moment think of any simple example that would illustrate it. As an example of the power of the Keynes-Johnson methods the reader is advised to look at Chapter XVII., in which Mr. Keynes solves in a few lines problems over which Boole spent pages of algebra, arriving as often as not at results which are certainly wrong.

To the mathematician I should imagine that the most interesting thing in this part would be Mr. Keynes's beautiful treatment of Laws of Error, and his general solution of the problem: What form must the law of error take in order that the most probable value of a measured variable shall be represented by the arithmetic, the geometric, the harmonic, and other means, of the observed values? I know of no treatment of this subject which approaches Mr. Keynes's for clearness and generality. To most readers of MIND, however, the chapters of greatest interest will be the earlier ones on the notions of *Groups* and *Requirement*.

Both these notions were first devised by Mr. Johnson to deal with such problems in deductive reasoning as are raised by Mill's attack on the Syllogism and by the apparent paradox about a false proposition implying all propositions and a true proposition being implied by all propositions. Mr. Keynes first explains the applications of the theory, and then proceeds to give his own extension of it to the case of probable reasoning.

A group, so far as I can understand, consists of a set of propositions which must contain some formal principles of inference, and includes in addition all propositions that follow from the fundamental set by the principles which are contained in that set. A group is said to be real if the set of propositions which determine it are all known to be true, otherwise it is said to be hypothetical. It is of course possible for the same group to be determined by

several alternative sets of propositions, though a given set necessarily determines a single group. Mr. Keynes and Mr. Johnson are both persuaded of the extreme importance of the theory of groups in the logic of inference. I agree with them to this extent, that the *facts* that the theory of groups takes into account are of vital importance. But it does seem to me that they can all be stated much more simply in other terms; and I have failed to find anything specially important that follows from the group notation and would not have been discovered without it. Possibly I am only exhibiting my ignorance. The essential point that the group theory is meant to bring out is the distinction between what Johnson calls the Logical and the Epistemic factors in inference. The latter is the question of the order in which we get our knowledge. *E.g.*, p implies q provided that either p is false or q is true. So far it is irrelevant how we came to know that this disjunction holds. But when we say "if p then q" we mean something more than this. We mean that it is possible to know that p is false or q is true without having to know that p is false or having to know that q is true. And the only way in which we can know such a thing is by seeing that the disjunction is an instance of some formally true hypothetical such as "if $S\alpha P$ then $\overline{P}\alpha\overline{S}$". Again, if we want to infer q from p it is obviously necessary to be able to know that p is false or q true before you know whether q is true or not. All this can be and is expressed by Mr. Keynes in terms of the theory of groups; and my only doubt is whether it becomes any clearer or leads to anything further when so expressed.

A proposition has a probability with respect to a set of data h when neither it nor its contradictory falls into the group determined by h. Does this really enlighten us any more than to know (what is equivalent to it) that neither the proposition nor its contradictory must follow logically from the *premises* mentioned in h by the known *formal principles* of deductive logic? On page 131 Mr. Keynes has a formidable definition in terms of groups of the statement that "the probability of p does not require q within the group determined by h". When this definition is unpacked it seems to me to amount to no more than this: You can make a selection h' out of h such that no part of h outside h' will alter the probability p/h' when added to h'; and some part of h outside h' when added to h' will alter the probability of q/h'. If this be the right interpretation, it is far easier to grasp than Mr. Keynes's definition in terms of groups.

Not only am I doubtful of the fruitfulness of the group theory, I am also not satisfied that Mr. Keynes's treatment of hypothetical groups is adequate. All groups must, so far as I can see, include in their fundamental set formal principles of inference as well as premises. I quite understand that the premises may be hypothetical. But can we really allow the generating principles to be hypothetical also? Mr. Keynes does not discuss this point, which

seems to me to be a very important one for a person who is going to admit hypothetical groups.

Let us next turn to Mr. Keynes's theory of inductive generalisation, which is contained in Part III. It is peculiarly gratifying to me to find how nearly Mr. Keynes's view of the nature and limits of induction agrees with that put forward quite independently by me in two articles in MIND. We both agree that induction cannot hope to arrive at anything more than probable conclusions, and that therefore the logical principles of induction must be the laws of probability. We both agree that, if induction as applied to nature is to lead to results of reasonably high probability, nature must fulfil certain conditions which there is no logical necessity why it should fulfil. Finally, we agree as to the nature of those conditions, in general outline at any rate. In some way the amount of ultimate variety in nature must be limited, if induction is to be practically valuable; the infinite variety of nature, as we perceive it, must rest on combinations of a comparatively few ultimate differences. But of course Mr. Keynes's theory is far more detailed and subtle than anything of which I am capable; and it is, so far as I know, the only account of the logic of this process which a self-respecting logician can read with any satisfaction.

The problem of induction boils down to this: We examine n things. They have the r properties $p_1 \ldots p_r$ in common; this is called their total positive analogy. There is also a set of properties $q_1 \ldots q_s$ such that each is present in some of the things and none is present in all of them; this is called the total negative analogy. Both the positive and the negative analogies in any actual case are pretty certain to be greater than the *known* positive and negative analogies, which form the only basis of our argument. Our object is to prove some proposition of the form that everything which has the properties $p_1 \ldots p_m$ has the properties $p_{r-l} \ldots p_r$. It is obvious that this can only be possible if some part of the known analogy is irrelevant. *E.g.*, all the examined instances agree in the fact that we have examined them, that they are confined to certain limits of space and time, and differ from all unexamined instances in these respects. Whenever this part of the known analogy is relevant to the attempted generalisation, it is clear that the attempt is doomed to fail. Thus an essential factor in all inductive generalisations is judgments of irrelevance. Many of them no doubt depend on past experience, but Mr. Keynes holds that there must be a residuum which is *a priori*. The only importance of the Uniformity of Nature is that it is a general principle of irrelevance, which asserts that *mere* differences of date and position are irrelevant. Mr. Keynes raises the question in a note whether this is affected by the Theory of Relativity; but he does not answer his own question. However this may be, it seems to me that the Uniformity of Nature, thus defined, is a mere pious platitude; since—whether space and time be absolute or relative—no two objects or events ever do differ merely in date or place.

Such differences always involve their being in intimate spatio-temporal relations with different sets of objects or events, and these differences cannot be assumed to be irrelevant.

Our generalisation always refers to much less than the known positive analogy. When we argue that all swans are white our generalisation only concerns whiteness and those few properties by which we define a swan. But all the examined swans were known to have many other common properties beside these, and we do not know that these are all irrelevant. All that we positively know to be irrelevant at this stage is the properties in the known negative analogy. We can reduce the dangers thus involved by seeking other instances which increase the known negative analogy. For this purpose mere *number* is unimportant. One instance which is known to differ from the previously examined ones in many of those properties which the generalisation assumes to be irrelevant is of more importance than dozens of instances which are exactly like those already examined. But there remains a danger due to the fact that the total analogy is almost certain to be greater than the known positive analogy. The extra and unknown analogies may be relevant; and, since we do not know what they are, we do not know where to look for negative analogies which will prove them to be irrelevant. In this case the only course is to increase the *number* of instances, trusting that, even though they do not differ in any known respects from those that have already been examined, they will probably between them differ in many of the unknown points of positive analogy from the examined instances. All this however only tells us how to diminish the objections to an inductive generalisation. It does not tell us that any inductive generalisation will possess a reasonable degree of probability, even when we have carried out these processes to the utmost. Something more is clearly needed if inductive generalisation is to be trustworthy.

The extra factor is dealt with in the chapter on Pure Induction. It is easy to prove that an hypothesis becomes more and more probable the more mutually independent consequences of it are verified. It is also easy to prove that, if it starts with a finite probability, sufficient verification of mutually independent consequences will make its probability approach as near as we please to unity. The problem that remains is: What justifies us in ascribing a finite antecedent probability to any inductive generalisation? To this Mr. Keynes answers that we are only justified if we assume that all the variety of perceptible properties springs from a comparatively small number of generating properties.

To each generating property there corresponds a large group of perceptible qualities, but we must admit the possibility that the class of perceptible qualities corresponding to ϕ_1 and the class corresponding to ϕ_2 may partially overlap. If so the group common to the two will not tie us down to a single generator. Setting this possibility aside for the moment, we see that if a

group α of perceptible qualities is found to be accompanied by a group β there is a finite probability that the complete group $\alpha\beta$ corresponds to a single generator, or that the generators of α include among them the generators of β. If this is so α will not be able to occur without β, and there is thus a finite antecedent probability of the generalisation, on which induction can build. If we allow that a group of perceptible qualities may have a plurality of possible generators this argument breaks down; but if we assume that the plurality of possible generators for every set is finite we can still assign a finite antecedent probability to inductive *correlations*, which assert that the next S, or at least a certain proportion of the S's, will be P.

Mr. Keynes seems to me to be right here; and it is true that this is the kind of assumption that does lie at the back of all our scientific reasoning. I have only two remarks to make. (1) Does the theory of generators add anything to the facts? Would it not be enough to assume that perceptible qualities do tend to occur in bundles? This is the whole cash-value of the assumption, and the doctrine of generators seems to be nothing more than a hypothetical explanation of our assumption. (2) Mr. Keynes holds that there is no circle in saying *both* that no inductive generalisation can acquire a finite probability without this assumption, *and* that the results of induction may make this assumption progressively more and more probable.

It is therefore not necessary that the fundamental inductive assumption should be certain. It is enough if it ever had a finite probability; for all subsequent experience has tended to support it. What Mr. Keynes means is, I think, this: If the world is a system with a finite number of generating properties we might expect to find a good deal of regularity and repetition in it. Now, up to the present, we have found more and more regularity and repetition the more carefully we have looked for them. Thus the actual course of experience has been such as to increase the probability of the inductive hypothesis, provided that it started with any finite probability. This works out in practice to the result that a large part of the confidence that we now feel in any inductive generalisation is due, not to the special evidence for it, but to the enormous and steadily increasing amount of regularity that we have found in other regions. There is, I think, no circle in this. Thus the one fundamental assumption of induction is that we can know somehow that the inductive hypothesis that nature is fundamentally finite has a finite antecedent probability. Mr. Keynes admits that it is very difficult to see how we can know this. It is certainly not an *a priori* principle, self evident for all possible worlds, that every system must depend on a finite number of generators. We can only suppose that in some way we can see directly that this has a finite probability for the actual world. But the epistemology of this is at present wrapped in mystery.

In Part IV. many interesting problems are discussed; but I

must only glance at them. Mr. Keynes ranges from Psychical Research to *Principia Ethica*, and from the *Argument from Design* to the Petersburg Problem; and he has something illuminating to say about all of them. From the point of view of pure probability the most important thing in this part is the definitions of an objectively chance event and of a random selection. The former is very important in connexion with statistical mechanics, the latter in connexion with most statistical reasoning. A chance event is not one which is supposed to be undetermined. Nor is it always one whose antecedent probability is very small. To throw a head with a penny is a chance event, but its probability is $\frac{1}{2}$. An event may be said to be a matter of chance when no increase in our knowledge of the laws of nature, and no practicable increase in our knowledge of the facts that are connected with it, will appreciably alter its probability as compared with that of its alternatives.

Part V. deals with the principles of statistical inference. It is too technical for me to give any complete account of it, so I will confine myself to a very short summary of the most important points in it. (1) Mr. Keynes considers the conditions under which Bernoulli's theorem holds, and shows that they are so restricted that we can seldom in practice count on their being fulfilled. (2) He severely criticises Laplace, and particularly his famous Rule of Succession. This occurs in connexion with the attempted inversion of Bernoulli's theorem. I agree with Mr. Keynes about this rule, but it seems to me that he is a little unfair to it in one respect. He assumes that it always deals with cases where what is drawn is replaced before the next drawing. On that supposition it is true, as he points out, that the formula only holds as the number of drawings tends to infinity. But the same formulæ hold without this restriction when the objects drawn are not replaced. And surely, if the Rule claims to have the slightest application to our investigations of nature, the latter is the right alternative. For we cannot observe the same event twice over, any more than we can draw a counter twice out of a bag if we do not replace it. (3) On all these subjects Mr. Keynes prefers Bortkiewicz, Tschuproff, Tchebycheff, and Lexis to the classical French school. I am afraid that, with the exception of Lexis, these names are mere sternutations to most English readers; but I suppose we may look forward to a time when no logician will sleep soundly without a Bortkiewicz by his bedside. (I must remark in passing that the beginning of Mr. Keynes's sketch of Tchebycheff's theorem seems to the uninitiated to commit precisely the same kind of fallacy which Mr. Keynes himself points out in Maxwell's deduction of the law for the distribution of molecular velocities in a gas. This is on page 353, where it is said that "the probability that the sum $x + y + z \ldots$ will have for its value $x_\kappa + y_\lambda + z^\mu \ldots$ is $p_\kappa q_\lambda r_\mu \ldots$". Surely this forgets that a sum of this

value could be made up in a great number of different ways by taking suitably chosen values of the variables. Why should not $x_\alpha + y_\beta + z_\gamma \ldots$ have the same value as $x_\kappa + y_\lambda + z_\mu \ldots$? In that case the probability will be much greater than $p_\kappa q_\lambda r_\mu \ldots$.) (4) About past statisticians Mr. Keynes makes a remark which exactly hits the nail. They never have clearly distinguished between the problem of *stating* the correlations which occur in the observed data, and the problem of *inferring* from these the correlations of unobserved instances. There is nothing inductive about the former; but, as it involves considerable difficulties, the statistician has been liable to suppose that, when he has solved these, all is over except the shouting. Thus the inductive theory of statistical inference practically does not exist, save for beginnings in the works of Lexis and Bortkiewicz. These beginnings Mr. Keynes describes and tries to extend.

There are several misprints in the book beside those that are mentioned in the list of errata. On page 170 the various kinds of h's have got mixed up in the course of the argument. On page 183 it is said that "we require a/ah_2h_2," when we really want a/ah_1h_2. On page 207 substitute $\phi(z)$ for $\phi(x)$ on the left-hand side of the equation. In the formula at the bottom of page 386 read f' for f in the second factor of both numerator and denominator. On page 395 in the first line after the equation read p_1 for the second p in the line.

I can only conclude by congratulating Mr. Keynes on finding time, amidst so many public duties, to complete this book, and the philosophical public on getting the best work on Probability that they are likely to see in this generation.

C. D. Broad.

The Analysis of Mind. By Bertrand Russell, F.R.S. London: George Allen & Unwin, Ltd., 1921. Pp. 310.

"Travelling, whether in the mental or the physical world, is a joy, and it is good to know that, in the mental world at least, there are vast countries still very imperfectly explored."

Many will feel that in those words, which occur early in his latest book, Mr. Russell has aptly summed up his own attitude to philosophy. For there has seldom been a bolder traveller in those realms than Mr. Russell, and seldom one who had more power to charm his readers by the accounts of his discoveries, or to communicate to them something of the zest he himself finds in such adventures. Almost every successive work which has come from his pen represents a new voyage of discovery, and most of his readers must at times have found it difficult to keep track of his rapid progress. But never before, I think, has he made so venturesome a journey as the present one, or covered in his survey so large a stretch of country.

We have already, of course, had preliminary reports of this

latest adventure. The theory which Mr. Russell now expounds more fully was adumbrated in his paper of two years ago printed in the Aristotelian Society's Supplementary Volume II., and in that form it has already been both attacked and defended in the pages of MIND. But the present work is wider in its scope; it is an outline, at least, of a system of metaphysics; and the theory of knowledge which formed the subject of the *Aristotelian* paper appears here as only a part of the larger scheme. Mr. Russell has not (so far as I can see) withdrawn any of his former contentions, but they appear in rather a different light when they fall into their proper place in the whole. It seems convenient, therefore, to treat the previous papers as being entirely swallowed up in this new work, and to take this book as being the first complete presentment of the new theory.

Its scope and its conclusion are briefly indicated in the preface. Psychology, under the influence of behaviourism, has steadily been growing more materialistic; but at the same time physics has developed in the direction of making matter less and less material. The two tendencies seem at first sight inconsistent, but Mr. Russell believes that they are not really so. "The view that seems to me to reconcile the materialistic tendency of psychology with the anti-materialistic tendency of physics is the view of William James and the American new realists, according to which the 'stuff' of the world is neither mental nor material, but a 'neutral stuff' out of which both are constructed. I have endeavoured in this work to develop this view in some detail as regards the phenomena with which psychology is concerned."

This statement, however, scarcely brings out fully the nature of the task which Mr. Russell has attempted. His book may be looked at from several different points of view. The reader is likely to be struck in the first place by the extent of Mr. Russell's debt both to the behaviourists and to the American new realists. The first few lectures are chiefly occupied with an exposition of their views, and it might seem almost as if Mr. Russell had abandoned some of his most characteristic positions and were confining himself to lending to these new theories the aid of his unequalled gift for the lucid exposition of complicated questions of philosophy. But as the work proceeds, this first impression is seen to be quite inadequate. Mr. Russell finds it convenient to start from the same point as the behaviourists, but it is not long before his path diverges from theirs; and what he does borrow from them he uses simply as material for a very individual and singularly bold piece of construction.

In carrying out this new theory, he has indeed, as he tells us early in the book, abandoned a number of doctrines which he previously held. But it would be a misapprehension to see in this a complete volte-face; what has happened, rather, is that Mr. Russell has developed one line of thought which has already appeared in his writings. The present work becomes most intelligible

if it is regarded as the application to a new material of the method followed in *Our Knowledge of the External World.* The object of that work was to show that the "matter" dealt with by physics can be exhibited as a construction out of sense-data, *i.e.*, that all the laws of physics can be stated as laws of connexion between sense-data. The present lectures attempt to analyse "mind" in the same way; and the conclusion is that there is no specific character "consciousness" which is of the essence of mind. We say that "consciousness" exists when there occurs a certain complex of sensations and images related in a certain way; the whole phenomenon is analysable into these sensations and images, but by themselves they have nothing "conscious" about them. Thus we end by analysing the subject, and all mental states and mental processes into sensations and images variously inter-related.

As I have already said, the book begins with an outline of the behaviourist attitude to psychological problems. It then proceeds to discuss various particular points, showing how far the behaviourist treatment will carry us and where it turns out to be inadequate. Desire and feeling are dealt with, and the conclusion is reached that they can be satisfactorily defined in behaviourist terms; they become, that is to say, names for certain causal laws of our actions. (This is not entirely true of conscious desire, but the additional elements there present are held not to make any fundamental difference.) Two chapters are then devoted to the exposition of two conceptions which Mr. Russell regards as of first-rate importance for the definition of psychology—*mnemic causation* and a *perspective.*

The exposition of the latter notion, and of the related notion of a *biography*, is substantially the same as that given in *Our Knowledge of the External World* and in *Mysticism and Logic.* But as Mr. Russell is here more concerned with psychology than with physics, biographies are given a somewhat fuller treatment, particularly in the chapter on "The Definition of Perception". It is pointed out that we can define a biography without leaving the standpoint of physics—the biography to which a sensation belongs is the set of particulars that are earlier or later than, or simultaneous with, the given sensation (assuming in accordance with the theory of relativity that there are only local times). But we find that there are certain biographies which have their parts connected together not only by time-relations, but also by relations of mnemic causation; these are the biographies of living beings.

And at this point we come on a new fact, of great importance for psychology. It is not the case that *all* the particulars of which we are aware can be collected together both to form physical objects and to form perspectives. There are certain appearances, commonly called images, which cannot be fitted into the physical world and so belong only to perspectives; in other words, images have a passive place but not an active place. The existence of such particulars is of course revealed only by introspection; and it is denied

by the behaviourists. But, argues Mr. Russell, once we accept his conclusion as to the nature of physical objects, we see that "the physical world itself, as known, is infected through and through with subjectivity," and so introspection need not be specially distrusted just because it is subjective. Psychology is much more of an independent science than the behaviourists would allow. Images, however, turn out to be the only peculiar fact which introspection reveals; Mr. Russell accepts many of the other behaviourist criticisms of the introspective process, and agrees that it gives no ground for asserting the existence of a subject, of mental acts, mental states or any of the other specifically "conscious" entities which it has often been supposed to disclose.

So far then we have empirical evidence for the existence of two kinds of things only—sensations and images. A later chapter goes on to discuss their respective natures. The conclusion as regards sensation is that of the American realists; "a patch of colour and our sensation in seeing it are identical". Sensations in fact "are what is common to the mental and physical worlds". Images are clearly different in some way from sensations; but in the end it turns out that they differ not in their intrinsic natures, but only in the causal laws which they obey. Images may have mnemic causes and always have mnemic effects; sensations have only physical causes though they may have mnemic effects.

It remains for Mr. Russell to show that the analysis of mind which he has suggested is confirmed by an examination of the remaining kinds of mental processes. He has already argued that desire, pleasure, pain and perception can be completely explained as complexes of sensations and images; knowledge, thinking, truth and falsehood have still to be analysed into the same elements. This task is, as Mr. Russell recognises, the most difficult part of the enterprise; and it occupies nearly the whole of the second half of the volume.

This analysis is worked out on the lines of Mr. Russell's *Aristotelian* paper; it involves considerable complications and is scarcely capable of being summarised. The conclusion is that a belief consists entirely of a complex of sensations and images variously related, together with a specific belief-feeling; when this complex corresponds in a certain way to the facts, then the belief is true, and we have knowledge. There is no such thing as an immediate cognitive relation: "I believe knowing to be a very external and complicated relation, incapable of exact definition, dependent upon causal laws, and involving no more unity than there is between a signpost and the town to which it points".

The concluding chapter collects and emphasises the general conclusions reached; attempts to define mind, which however is found to be "a matter of degree, chiefly exemplified in number and complexity of habits," and so not capable of exact definition; and ends with a sketch of "the nature of that fundamental science which I

believe to be the true metaphysic, in which mind and matter alike are seen to be constructed out of a neutral stuff, whose causal laws have no such duality as that of psychology, but form the basis upon which both physics and psychology are built". The chapter does not profess to work out this notion in detail, but only to suggest general lines on which it might be worked out. The above fundamental science, Mr. Russell thinks, would be somewhat nearer to psychology than to physics; at least physics would appear as essentially derivative.

This summary, necessarily very inadequate, will still I hope be sufficient to make it clear that the new theory is an ambitious one, and that in boldness of construction it is not surpassed by anything that Mr. Russell has previously done. It may well be doubted whether anyone but Mr. Russell would have had the courage to attempt even the outline of so far-reaching a theory within the limits to which he has here confined himself. And even those who withhold assent from the conclusions will be unable to withhold admiration from the exposition.

But certainly there is matter and to spare for controversy in this volume. The criticisms that might be suggested are, I think, of two kinds—those directed against particular points in Mr. Russell's psychological analysis, and those attacking the tenability of his theory as a general account of the nature of knowledge and of reality. I shall mention a few difficulties that occur to me under each of these heads.

Mr. Russell's treatment of desire is an excellent example of his method. Starting from the behaviourist point of view he concludes that the conscious element in desire is of secondary importance; "the primitive non-cognitive element . . . seems to be a push, not a pull, an impulsion away from the actual, rather than an attraction towards the ideal. Certain sensations and other mental occurrences have a property which we call discomfort; these cause such bodily movements as are likely to lead to their cessation." As for discomfort and its opposite, pleasure, "we may regard them as separate existing items in those who experience them, or we may regard them as intrinsic qualities of sensations and other mental occurrences, or we may regard them as mere names for the causal characteristics of the occurrences which are uncomfortable or pleasant". Holding that there is nothing conclusive to be said in favour of the first view, Mr. Russell proceeds to argue that, since either the second or the third is equally capable of accounting for the facts, "it is safer to avoid the assumption that there are such intrinsic qualities of mental occurrences as are in question, and to assume only the causal differences which are undeniable". Discomfort, then, like desire becomes merely a name for a causal law of our actions; and Mr. Russell has analysed away two things which might have been held to have something specifically "mental" about them.

What Mr. Russell here describes as "avoiding an assumption"

seems to me to pass later on into something much more positive, but I leave that point aside for the moment. My difficulty is that the suggested definition of discomfort does not seem to correspond, even in extension, with the ordinary use of the word. There are, it seems to me, cases of what would be described (and properly described) as discomfort where it is *not* true that "the occurrence in question stimulates voluntary or reflex movements tending to produce some more or less definite change involving the cessation of the occurrence"—as when a person has lost hope of improving his condition. A man suffering from a mortal illness might be in such a state, and might resign himself to continued discomfort (and I am not here challenging the distinction between discomfort and pain). There are equally I think cases where a behaviour-cycle, involving consciousness of the end, is in progress, but where discomfort, in anything like the ordinary sense of the word, is absent—as when a man is eagerly engaged in playing some game. The question then of what discomfort really is cannot be shelved by proposing to define it as Mr. Russell does. Introspection, it seems to me, shows it to be a positive mental fact of some kind; and this, if it is true, is surely of more importance than the question whether we can "get on" without it or not. We can get along somehow without images, if it comes to that; but Mr. Russell admits their existence, for no more complicated reason than that he can see quite clearly that there are such things.

No doubt, however, the point is not a vital one for Mr. Russell's theory. He would probably be ready to grant that pleasure and discomfort may be specific "feelings," just as he asserts later on that belief is a specific feeling.

The question of the nature of desire remains to be decided. The primitive element in desire, Mr. Russell says, is the push of discomfort; and he makes this statement before he has proposed his own definition of discomfort, so presumably he supposes the statement to be true when that word is taken in its everyday meaning. I cannot feel that the arguments he brings forward here are really convincing; he does not seem to me to have given enough consideration to those types of desire which are most difficult to reconcile with his view. For instance, Sidgwick, in the passage in the *Methods of Ethics* where he touches on this question, gives a careful analysis of some instances of desire, and reaches the conclusion that in those instances there is no painfulness present; there is, he admits, unrestfulness—but unrestfulness is not the same as uneasiness. I do not suggest, of course, that Sidgwick foresaw the coming of behaviourism and refuted it by anticipation; but in the passage in question he seems quite alive to the force of some of the points which have struck Mr. Russell, and there have been few writers who could weigh a question of this kind more judicially than Sidgwick. Mr. Russell might say, of course, that if we allow for the effect of beliefs in causing secondary desires, we shall be able, by introducing some complica-

tions, to bring all doubtful cases under his formula. It may be so; but I confess I should like to see it done.

The whole point is of course a minor one; and no doubt alternative analyses of desire might be suggested equally compatible with the general metaphysical conclusion of the book. But that conclusion is in danger so long as a single type of mental state resists analysis into sensations and images, even if all the others have been successfully dealt with.

I must pass on, however, to what Mr. Russell says about theory of knowledge, for it is here, as he himself recognises, that the real testing-point for his view comes. That this should be so is only natural when we consider that Mr. Russell's view is in one respect the latest statement of a doctrine which has already a long history behind it, *viz.*, sensationalism. Of course, Mr. Russell's sensationalism is a very new variety of that old philosophy, but I think it is sufficiently like the classic type to make the application of the label legitimate. Again and again the positions he takes up, and almost the very words in which he states them, recall to us irresistibly similar doctrines in Hume, or in Mill, or in Spinoza. Hume, indeed, is definitely quoted on more than one occasion. And no one can help feeling that the whole temper of the work carries on the naturalist tradition. The latter part of the book, indeed, deals with questions which are already classic in the history of discussion. One might almost say that here Mr. Russell abandons the detached position which he has previously occupied with regard to these historic controversies, looking on both sides as being equally victims of some misapprehension. In the old dispute between naturalism and idealism, he is now definitely on one side. (This ought, by the way, to be a very welcome event to those idealists who always felt that the new realism, since it was anti-idealist, *must* be only naturalism in a new guise.)

No apology, I think, is necessary for thus treating the present work as a document in the history of philosophy. It is not only that what Mr. Russell thinks to-day a good many people are apt to think to-morrow (although they may find that by that time Mr. Russell is no longer in agreement with them); it is still more that the support of one with Mr. Russell's traditions was exactly what the new naturalism stood most in need of. For such a theory has always found some followers, and a large section of psychologists have always tended towards it along their own lines. But since the success of the neo-Kantian attack on empiricism, it has been generally held among philosophers that whatever partial truth naturalism might contain as a method of psychology, its inadequacy was exposed as soon as it attempted a logic or a theory of knowledge. Now it is precisely in the region of logic and of theory of knowledge that most of Mr. Russell's work has hitherto been done. This new alliance, then, seems to me a philosophical event of first-rate importance.

It is natural to ask, as Mr. Joachim has already done, how far

the new theory can escape objections such as Green and Bradley directed against the older sensationalism. One must recognise however that Mr. Russell's position is considerably more subtle than Hume's. In Hume impressions and ideas are somehow conscious states. For Mr. Russell a sensation is a particular which is in no sense mental; it is a thing which may enter into consciousness, but it has no essential connexion with mind.[1] But on the other hand Mr. Russell's position is more subtle than that of the American new realists. He recognises that the consciousness of a sensation must be something much more than the occurrence of that sensation. Consciousness must be *of* something; there must be some sort of duality or complexity in any conscious event. Nor is it enough that there should be a sensation and an image; there must be a belief-feeling as well. Still further, says Mr. Russell (and the point, if not the words in which it is expressed, might almost be taken from some neo-Kantian criticism of associationism), "it is not enough that the content and the belief-feeling should co-exist; it is necessary that there should be a specific relation between them, of the sort expressed by saying that the content is what is believed".

The theory then cannot be accused of too great naïveté; Mr. Russell is perfectly aware that what seems the fundamental fact of consciousness—that someone is conscious *of* something—has got to be satisfactorily explained. The question is whether he has succeeded in showing how, by adding together particulars which are themselves only objects, we can reach the kind of complex which *seems* to consist in a subject knowing an object.

Now a large number of people, at any rate, when confronted with a theory such as the present one which appears to succeed in "constructing" the subject in this way, have an uneasy feeling that there must be a trick somewhere—that the conclusion seems plausible only because a subject has been introduced surreptitiously in the course of the construction. This feeling may really be a sign that there is something wrong, since it is certain that our first perception of a flaw in an argument is often a vague discontent of

[1] This being so, would it not have been better to discard the word "sensation" altogether? Among the many meanings which that word has had in philosophical discussions, it has always at least meant something more or less connected with consciousness. Mr. Russell would, I suppose, reply that the thing which he calls a sensation is the same thing that most people call a sensation, only those people are in error when they suppose that the thing in question has anything mental about it; therefore he has a perfect right to retain the word while freeing it from its false associations. But I do not think this would be a sufficient answer. For people, when they call a thing a sensation, mean to imply that it is mental; and if they were convinced that they were mistaken in supposing it to be mental, they would probably say, not "Well, you have now convinced me that sensations are not mental," but "I now see that what I thought to be mental is really not so, and I was therefore mistaken in calling it a sensation".

this kind; it may on the other hand be founded on a mere prejudice, and in that case we must attempt to overcome it if analysis discovers no justification for it; but in either case it is relevant to register its presence.

My own opinion is that the subject really is introduced in Mr. Russell's account of knowledge, and that this is done under cover of what he calls the "belief-feeling". The "belief-feeling" is of capital importance in his analysis; without its presence there can be no knowledge and no consciousness. It is strange then that anything which plays so large a part in the theory should receive such a small share of the limelight. And yet such is the case. All Mr. Russell tells us is that there are at least three kinds of belief, memory, expectation and assent, and that each of these is "presumably a complex sensation demanding analysis". Sometimes, as in this passage, he calls belief a sensation, but more often he calls it a feeling; in any case he does not, he says, profess to be able to analyse it. But short of analysing it, what justification is there for calling it a sensation or a feeling and thus getting it to fit into the general formula? If we are to talk of a sensation of belief, surely we must recognise that we are dealing with something very different from a sensation of blue; for the essential characteristic of belief is that it is directed towards something, and it is only by the possession of this characteristic, which no other sensation appears to have, that it is capable of playing in knowledge the part it does play. I do not see how we can be satisfied with the statement that mind can be analysed exhaustively into sensations and images until it has been made much clearer that belief really is merely a sensation. Nor is the case better if it is spoken of as a feeling. The only analysis Mr. Russell gives us of feelings occurs in chapter iv., and there as we have seen he distinguishes three possible theories as to their nature. The last of these—that a feeling consists only in causal properties—he definitely rejects in the case of belief; so we are shut up to the other two, and of those Mr. Russell is bound to choose the second, that feelings are intrinsic qualities of mental occurrences. Now is it plausible to say that belief is simply a quality of some sensation or image, and if so of which sensation or image in the belief-complex is it a quality? Not, clearly, of any one of the images of the *content*, for the belief is directed towards the whole content. Are we to say, then, that it is a "quality" of some organic sensation, which forms a part of the belief-complex (though not of the content believed)? If so, is it at all intelligible how an organic sensation can have a quality which has the peculiar characteristic of being directed towards something? Mr. Russell's whole treatment of feeling is, however, inadequate; the above threefold division of theories is put forward originally as applying only to pleasure and discomfort, but later on in the book we are referred to this chapter for the analysis of feeling. And in the end, Mr. Russell wavers between calling belief a feeling and calling it a

sensation. For my part, until the "belief-feeling" has been completely analysed and turned inside-out, I shall continue to believe that within it is concealed something which is neither a sensation nor an image—something which, if it were let out of the bag, would upset the whole construction.

One of the classical objections to the older sensationalism was that it led inevitably to scepticism. This result followed, it was held, chiefly because sensationalism, starting with nothing but particulars, could never reach a universal proposition by any valid process of inference. As regards this point, Mr. Russell's position is rather peculiar. "I *think*," he says on page 228, "a logical argument could be produced to show that universals are part of the structure of the world, but they are an inferred part, not a part of our data." And his whole way of speaking in that chapter emphasises the view that the way in which we know universals is even more indirect than the way in which we know other things. When we are "thinking of a universal" the content of consciousness is always a particular. Of course there is always, on Mr. Russell's view, "an awkward gulf" between content and object "which raises difficulties for the theory of knowledge" (at least he says this in the case of memory); but the gulf would seem to be greater than usual in the case of universals, for in their case the element in the content which "means" the universal is never itself a universal. "A universal," he says, "never appears before the mind as a single object in the sort of way in which something perceived appears" (p. 228). (It is true that this statement is somewhat difficult to reconcile with the statement on page 274, where speaking of an image-proposition about the position of a door and a window, he says "In the case we have just been considering the objective consists of two parts with a certain relation (that of left-to-right), and the proposition consists of images of these parts with the very same relation". I do not know whether this is to be taken as implying that there are some universals which *can* appear before the mind as single objects; or that the relation in this case is not a universal, but only an instance of a universal. However that may be, the view that only particulars can appear before the mind is the one emphasised in most passages in the book.) Now, if this is so, it surely does raise serious difficulties, not indeed as to the possibility of there being true beliefs, but certainly as to the possibility of there being reasoned beliefs. The fact that one proposition implies another can never, on this view, be directly perceived; it can only be known in a roundabout manner. I need not labour the point about the difficulties this raises as to the possibility of valid inference; and I do not suppose for a moment that Mr. Russell is not very much alive to it. But certainly he does little to remove our difficulties. There are a few sentences on pages 228-229, outlining the way in which the logician deals with words which stand for universals, but they are clearly not intended to do more than glance at the subject. There is also, in the lecture

on Truth and Falsehood, a section devoted to verifiability; but the difficulties there discussed are such as arise on any theory of knowledge, whether it admits some sort of immediate awareness or not. Mr. Russell has scarcely touched, in fact, on the more special difficulties which beset the sensationalist theory of knowledge; and since (as I have already said) it was just on this very point that his aid would have been particularly valuable, one feels a certain degree of disappointment that he has not here gone more fully into the matter.

As I have already mentioned, this whole work is an application of that "scientific method" which Mr. Russell first outlined for us in his Lowell Lectures. He does not indeed state this fact so explicitly as in the earlier book; but the nature of the method is made clear enough at particular points in the discussion. At such points it appears how vital for the establishment of his conclusions the adoption of this method is. It may, therefore, be not irrelevant to mention a few objections to which the method appears to me to be open.

Its most characteristic device and the one which the author finds most useful for his purpose is that which we have already seen employed in the case of feeling, *viz.*, the definition of a thing in terms of its properties. By this method we are able, when the existence of anything is at all doubtful, to "avoid the assumption" of its existence and yet proceed successfully with our construction. And Mr. Russell has left the path along which he proceeds to his goal haunted by the ghosts of such possible existences.

Now if it should be the case—and it is admitted that it may be the case—that these things, whose existence we have refrained from asserting, actually do exist, then our final account of reality will be an incomplete one. It will not, so far as it goes, be false; it will be an accurate account of the nature and connexions of things *other than* the things in question; but incomplete it certainly will be. Now it may be argued that it is better to assert only what we are sure of than to strive after completeness (which is in any case unattainable) by asserting what is doubtful. And no doubt this statement is an unimpeachable one as it stands. But it assumes—and the assumption is an important one—that we can divide all the things of whose reality there is question into two classes, the undoubted and the doubtful; and that having done this, we ought then to define the latter in terms of the former, and so refrain from asserting their existence. Mr. Russell seems to work on this assumption throughout the present book; a fact which I find the more surprising because in his Lowell Lectures he clearly recognises that only a vague distinction can be made between the undoubted and the doubtful.

Now suppose there is no clear division between the two classes, are we, in order to avoid the risk of error, to reduce to the lowest possible limits the number of things whose existence we assert? It is always in our power to do this, for the method is capable of

quite general application; we can take any kind of entity and define it as the class of its properties. Mr. Russell does not himself reduce his assertions to the minimum number; for he asserts the existence of images, although it is possible to get on without this assertion.[1] He does this, of course, because images seem to him to belong to the class of undoubted things. But in face of the fact that Prof. Watson and a number of his followers deny the existence of images, it is surely very questionable whether we can place them straight off in the undoubted class. And just as Mr. Russell finds the class of undoubted things to be a larger class than does Prof. Watson, so there are others who find it to be a larger class than does Mr. Russell; there are, for instance, people who believe that they are immediately aware of the existence of the subject. It would appear then that the line between undoubted and doubtful is not easy to draw; and so the question suggested a few lines above "Are we to reduce to the lowest possible limits the number of things whose existence we assert?" demands an answer.

For my own part, I believe that this question ought to be answered in the negative, and that if we are to employ the scientific method, we shall have to supplement it by the use of other principles as well. The question of whether we are to include, in our account of the contents of reality, such things as physical objects, or feelings, or selves will have to be determined by balancing a number of considerations; we shall be influenced on the one hand by the desire not to assert the existence of anything whose existence is extremely doubtful, on the other hand by the desire not to make our account incomplete by omitting anything whose existence is probable. The determination of the degree of probability of the existence of any particular thing will itself of course be a complicated matter and will depend on a number of different factors. I do not profess to be able to say to what sort of system of reality the application of such a method would lead us; and even to touch on the matter would lead me too far from Mr. Russell's book. But I may illustrate my meaning by a reference to one point which is of cardinal importance in Mr. Russell's theory—the question of the existence of the subject.

Mr. Russell repeats on this point the arguments of Hume and of James—he has looked for the subject and found nothing but

[1] It seems a little difficult to understand why Mr. Russell does not apply his method to the belief-feeling. He says on page 247: "Now, it seems clear that, since believing and considering have different effects if one produces bodily movements while the other does not, there must be some intrinsic difference between believing and considering; for if they were precisely similar, their effects also would be precisely similar". But in what does this case differ from that of discomfort, which was defined in terms of causal properties? It is true that Mr. Russell gives other arguments for holding that belief differs intrinsically from consideration; but the above argument is presented as valid by itself.

objects. Dr. Schiller has already replied that he has looked for it in the wrong place; but Dr. Schiller and Mr. Russell start from such different points of view that to contrast their positions on any point of detail does not, perhaps, help us very much. There is, however, another philosopher whose position is not so far removed from Mr. Russell's, who holds that we have some sort of immediate consciousness of the subject; I mean Prof. Alexander. Now for Prof. Alexander, of course, the consciousness we have of the subject is of a different kind from the consciousness of objects; and doubtless Mr. Russell would reply to him as he has done to Dr. Schiller, that he recognises only one way of acquiring knowledge, and that is by observation; the subject can either be observed or it cannot. But is this not after all to make an assumption?—the assumption that all things that are known are known, as it were, on the same plane. Now whether or not we consider the notion of "enjoyment" a satisfactory one, it is surely at least *possible* that the above assumption is false and that there may be different ways of knowing things. And if this be granted, then to begin one's enquiry by refusing to look for reality except by "contemplation" is to cut oneself off, at the very start, from a possible source of knowledge.

The fact then that we cannot observe the subject as we do a sensation ought not to be used in order to rule out at once the assertions of all those who contend that they have some sort of immediate consciousness of a subject. There is *some* evidence then for the existence of the subject; and once this is admitted, then surely the fact that the assumption of the subject enables us to avoid many difficulties in the theory of knowledge becomes relevant; it is one thing to bring in an entity *merely* in order to simplify theory of knowledge, it is another thing to do so when there is already some independent evidence for the existence of such an entity. Even if, then, it is theoretically possible to get on without asserting the existence of the subject, it may very well be that we ought none the less to assert it. We shall have to weigh the risk of asserting more than we have conclusive evidence for against the risk of making our account of reality less complete than it need be by the omission of a thing for whose existence there is some evidence.

It would be indefensible, at this time of day, to occupy space in MIND by enlarging on the proposition that what Mr. Russell writes is worth reading. This must be my excuse for having devoted the present review to criticism rather than to appreciation of his latest brilliant contribution to philosophy. In most of what I have said, my complaint has been that he has scarcely allowed himself room, in the work before us, to give to a number of obscure questions the fulness of treatment which they demand. Let us hope that Mr. Russell will shortly indulge himself—and us—to the extent of a volume more on the scale of *The Principles of Mathematics.*

ALAN DORWARD.

VII.—NEW BOOKS.

Studies in Human Nature. By J. B. Baillie. London: G. Bell & Sons, Ltd., 1921. Pp. xii, 296. 15s.

Prof. Baillie's object in this important and welcome collection of essays is to study certain characters of human nature for their own sakes, and without the bias which interest in a particular theory might give. But his choice of topics was directed by an interest in the question of the limitations of the intellectualistic attitude which many philosophers adopt. What does an unbiassed examination of the facts of human nature tell us of the function of thought in human life, of its relation to the other human activities, and of the nature of its object? Setting out with such a problem, Prof. Baillie would naturally be led to a series of studies such as those in the present volume.

His answer is on the whole disintegrating; though the chapter on "Philosophy in Human Nature" shows that, for the author, philosophy has an extremely important function. The postulate that the world is rational is not borne out either by the success of any single philosopher, or by common agreement among philosophers, or by a steady development within philosophy itself. The implication that rationality is the most important and desirable phase of human nature is contradicted by the facts of human nature. "Human life is not a scientific enterprise, nor the universe a mere riddle for philosophers" (11). The rationalistic attitude toward the universe characterises only a small number of men, restricted within narrow limits of space and time, having their habitat just like certain types of fish or tree.

This view is confirmed by an examination of thought itself, of the language and concepts which are thought's instrument, and of the non-logical factors by which thought is guided and sustained. Thinking is a human process, just like seeing; and just as seeing is conditioned by the nature of our eyes, so thinking is conditioned by the nature of our intellect. Our intellect shows itself in the kind of language, the sort of concepts, we construct for the systematisation of reality; and if our intellect were different, our constructions would be different. In this result Prof. Baillie seems to be perfectly consistent. The argument that awareness which involves the human organism is conditioned by that organism, while denied by some, is often accepted as self-evident. It appears to us to be a very complex question, involving many considerations. But if it is to be accepted anywhere, then consistency seems to involve that we should accept it in relation to thought. Prof. Baillie remarks that the processes leading to error are not in any way different from those leading to truth, and that hence the results cannot differ in kind in the two cases. As a consequence, reality is regarded everywhere as intimately bound up with man's activities. There is no reality external to man for man to know; and thus knowing is not an attempt to get into touch with the nature of something whose nature is independent of man. Knowing becomes an attempt on the part of man to find satisfaction through the activity of one aspect of himself. Truth is anthropomorphic.

This is not all. If it were, it could still be maintained that knowing is man's central activity, and that systematic completeness of knowledge is the goal of the process. Prof. Baillie denies this. Knowing is conditioned by certain non-logical factors—emotion, memory, and imagination are the chief—which restrict its activities and determine its essential function. Whether the intellect shall be active or not, in what directions it shall work, how far its activities shall go, depend on the emotional response to the environment, on the accuracy and width of memory, on the imaginative penetration, of the searcher; and these things differ with different men. Prof. Baillie would conclude, not that the existence of the search shows that there is an objective independent of man to be aimed at, but rather that the search is relative to the searcher. His courageous working out of this position is extremely valuable as pointing a fruitful direction for those who regard knowing as a good in itself, but who have felt disheartened by the apparent inability of knowing to achieve a systematic view of the universe.

Even the logical factors involved in knowing—and for these Prof. Baillie simply refers us to "current logic"—differ in different men. Men differ in their sense of what is clear or self-evident, consistent or inconsistent; in the reach, complexity, subtlety and precision, of their intellects; and thus it would be absurd to expect any measure of agreement in the ultimate intellectual attitude of different men. (The difficulty here is to see how to understand the "logical" factors. If Prof. Baillie's view is correct, then a radically different view of the logical factors from that of the current logic seems necessitated.) The way of intellect is simply one of the ways in which man seeks self-satisfaction; and it is to be considered as parallel in its nature to art and morality. They and it react on one another, and are to be regarded as organically related parts of man's whole nature, which seeks, not the self-completeness of any aspect, but growth through complete activity.

This general attitude (expressed in Essays I., III., VI., VII., VIII.) is confirmed in detail by the accounts of perception, judgment and inference (in the second essay), of memory (in Essay IV.) and of emotion (Essay V.): where it is contended that each aspect of the self makes its own unique and distinctive contribution to knowledge, which cannot be set aside in the interests of the contribution of any other aspect, and that hence the ideal of systematic completeness cannot be supreme. He speaks occasionally of his view as involving an appeal to intuition, but intuition means more than the simple fact that each aspect of the self stands on its own feet and claims ultimacy within its own sphere. Intuition is bound up with feeling. He speaks (82) of the emotional thrill with which man responds to selected parts of his environment as "one of the most mysterious manifestations of mental life," and (61) of the full joy, the complete sense of fulfilment, which successful thinking brings; and it is in the light of such statements that we should read the brief account of intuition on page 74, as the final operation of the mind in knowing, "inseparable from feeling and carrying the sense of completed mental activity or free self-fulfilment". It is this state of mind which is the goal of knowledge, and not "a system of thoughts outside the mind".

This whole view, dealing as it does with the most important of all the philosophical problems of to-day, is expounded with remarkable lucidity and vigour. The account of certain non-logical factors in knowledge is the most careful and balanced statement we have yet seen on this subject. There is an illuminating final essay on "Laughter and Tears" which treats the subject of laughter in close relation with its opposite.

A companion series of studies, dealing with morality and citizenship,

is foreshadowed in the preface. Readers of the present volume will look forward to its companion with great interest.

LEONARD RUSSELL.

The Moral and Social Significance of the Conception of Personality. By the late ARTHUR GEORGE HEATH, M.A., sometime Fellow of New College, Oxford, and Lieutenant in the 6th Batt. Royal West Kent Regiment. Oxford: at the Clarendon Press, 1921. Pp. viii, 159. Price 7s. 6d.

All who have read the *Letters* of Arthur George Heath, and the brief but fitting memoir by Prof. Gilbert Murray which prefaced them, must have realised, even if they did not know him in life, that his death on the field of battle robbed Oxford and New College of a singularly fine character and a mind rich in promise of distinction. They will turn with more than ordinary interest to this short essay, which gained the Green Moral Philosophy Prize in 1914, and which has now been given to the world by his friends and literary executors, notwithstanding the fact that Heath himself, before sailing for France, advised against its being published as it stands. The decision to override Heath's own judgment must have been a grave and difficult one, but there is good reason to feel grateful to the editors for their courage. True, the essay, as they recognise, "will not win for its author the reputation as a philosopher which he would have attained if he had lived to complete his life's work" (p. iv), but it helps one to understand the trend of philosophical thought among the younger generation of Oxford teachers, and it shows Heath's freshness and independence in the handling of a well-worn topic.

Oxford, it is clear, is turning away from the idealism of Green and Caird, Bosanquet and Bradley. Even Plato is mentioned only to be criticised. The dominant character of this reaction is, broadly, "realistic". In the theory of knowledge, its leaders insist upon the distinction between the act of knowing and the object known. In political theory, they protest against the "exaltation of the State," against the "social mysticism" which ascribes to the State a consciousness and personality higher than those of its individual citizens, and expresses itself in Hegel's "Es ist der Gang Gottes in der Welt dass der Staat ist". In metaphysics, they reject the absolute, especially when conceived as an infinite person, and construe the universe pluralistically as a society of finite spirits. All these characteristics of a realistic, or at least anti-idealistic, movement of thought are to be found in Heath's essay, though from its predominantly ethical and political interest the emphasis naturally falls on the second point, *viz.*, the comparative analysis of forms of social organisation as making for the more abundant life of individual minds. "We are persons in order that we may become personalities" (p. 4). "The highest goodness of which we can conceive is only possible . . . in the lives of finite persons" (p. 22). "In the world of spirit the differentiation of personality is final and sufficient" (p. 39). "A society of persons knowing the truth, wishing the good, loving one another and enjoying the fullness of their lives—such is the ideal of any unsophisticated mind" (p. 50). Sentences like these recur throughout the essay: they strike its keynote. The following summary, in the author's own words, best gives the total effect: "I wish to establish first that though some moral goodness may be found elsewhere than in persons, its most characteristic forms demand personality: that equally the highest goodness of which we can conceive would be personal goodness: that it would further be the goodness of finite personalities who could in no way be absorbed into one another though

they could, and necessarily would, live in intercourse with each other : but that this society could not be identified with the State, that the attempts to elevate the State into a moral being higher than any finite individual must fail, and that the divergence between personal development and social duty is in some sense a real fact . . ." (pp. 7, 8).

The argument in support of these theses, though rather uneven in quality, improves steadily as the essay proceeds, until it culminates in a really fine and powerful passage in which Heath prophesies that "as civilisation advances the present State must decline, and with it also the economic structure which the State at present partly controls and partly reflects" (p. 150). This decline of "law and politics" is to come about through man's advance in the control of Nature and of himself. The whole thought reminds one of Spinoza's concept of *jus in naturam*, to which, however, Heath does not refer. The State, to him, is not the "supreme form of human organisation" (p. 125), for he restricts the term explicitly to the sphere of power of the "Sovereign Legislature" (*ibid.*). To the State, so conceived, he does indeed concede the very important functions of being, in "the common interest," the ultimate court of control over all other forms of social organisation to which its citizens belong; and of exercising the supreme power of coercion (Part VII.). But he insists that many of the forms of social organisation which the State supervises and controls, *e.g.*, the family, or the church, realise, as measured by the quality of individuals' thoughts, purposes and feelings, higher moral values than does the State. Incidentally, Heath makes some sound remarks on the relation of the economic to other motives in human conduct (Part V., § 2), and shrewdly points out that the socialisation of industry would not abolish conflicts of interests, but only alter the machinery for settling them, by substituting the methods of the council chamber for the methods of the market (Part VI., § 3). No doubt, he would have put this point differently, had "direct action" been within his experience. Throughout he is much concerned to argue that the legal concept of the personality of corporations is a mere fiction, lest it be exploited in favour of a metaphysical personification of the State. Everywhere his principle is that "neither in the State nor in the Church nor any lesser grouping can you find a unit of value higher than the individual personality" (p. 89).

In the section on Self-Realisation (Part III.), Heath argues with much point that this concept is too vague to supply a standard for the development of a man's individuality. So far as it is positive, it calls for breadth rather than depth. But it leaves us helpless in the face of the problem of harmonising, except by unsatisfactory compromises, such conflicting elements of the ideal as action and contemplation, personal enjoyment or self-cultivation and social service. Heath does not appear to have noticed that his point here is fundamentally the same as that which Bradley makes in *Appearance and Reality*, and A. E. Taylor in *The Problem of Conduct*, and that it can be used as a premise for conclusions very different from his own. In general, morever, his preoccupation with the ideal of a perfection realised discretely in as many individuals as possible makes him ignore altogether both vicarious suffering and vicarious achievement. Yet it may fairly be held that no analysis, be it of individual persons, be it of social life, which is blind to these two things, does more than scratch the surface.

But the weakest portions of the essay, to my mind at any rate, are Parts I. and II. The foundation of Heath's whole position is given in this sentence : "it appears to me that we regard nothing as good in itself except states of consciousness" (p. 9). This judgment is nowhere discussed. No grounds are given, no elucidations offered. We must interpret it, I

think, as implying that also nothing is bad in itself except states of consciousness. Yet there is nowhere any attempt at a discussion of what constitutes badness and goodness in states of consciousness. If, *e.g.*, we insist on the distinction between the act of thinking and the object of thought (p. 36), the question at once arises whether goodness and badness belong to the acts by themselves (which alone, presumably, can be described as "states of consciousness"), or whether they depend also on the objects. Moreover, in spite of repeated readings, I cannot make out whether, in Part I., Heath does or does not intend to distinguish between "moral goodness" and other forms of "ultimate value". He begins by distinguishing them and enumerates knowledge of the truth, creation of works of art, and pleasure as non-moral values. But, thereafter, the question of the "goodness" or "value" of states of consciousness is uniformly treated as if it were exclusively the question of their moral goodness. And this question is further complicated by the distinction between beings who are conscious and beings who are self-conscious. Only the latter, aware of an alien world and capable of memory and anticipation, are strictly "persons". Yet persons share with lower animals certain emotions and impulses. And thus the problem is posed whether these emotions and impulses "can have a place in [moral] goodness" (p. 15) when they occur in self-conscious persons and, again, when they occur in unself-conscious animals. The whole discussion seems lacking in clearness and grip. Of Part II., which contains Heath's arguments against *The Idea of Infinite Personality*, it is enough to say (1) that, so far as they are polemical (chiefly against Lotze and Bosanquet) they bring nothing new and leave one wondering whether Heath really understood what those whom he criticises seek to express; and (2), that so far as he insists on the value of finite beings, and even of the imperfections and limitations of finite beings, he says nothing which an absolutist could not accept, or which could not be paralleled, *e.g.*, from Bosanquet's writings. With the question whether a finite creature is merely finite he does not deal. He simply assumes the affirmative.

There is a sentence in the *Conclusion* (p. 156) which makes poignant reading. "The feeling in the minds of many sincere and loyal citizens that their country is greater than themselves has to be set aside as misleading, although it is quite true that the individual may realise the highest within his powers in self-sacrificing devotion". Supposing death were an experience which men could survive and learn from, what should we not give to have Heath's own comments on this judgment now that he has himself made the supreme sacrifice for his country?

R. F. A. H.

Collected Scientific Papers. By JOHN HENRY POYNTING, Sc.D., F.R.S., Mason Professor of Physics in the University of Birmingham. Cambridge: University Press, 1920. Pp. xxxii + 768.

Friends of the late Prof. Poynting—and they are many—will welcome this handsome memorial volume of his scientific papers which has recently been published by the Cambridge Press. It has been edited by two of his junior colleagues, G. A. Shakespear and Guy Barlow; and interesting biographical and critical notices by Sir Oliver Lodge, Sir Joseph Larmor, Sir J. J. Thomson and G. A. Shakespear, have been inserted as an Introduction.

J. H. Poynting was one of the four first professors of the Mason College, Birmingham, opened in 1880 by Huxley (who delivered on the occasion his notable Address on "Science and Culture"). Poynting had been a student at Owen's College, Manchester, and at Trinity College, Cambridge,

and was Third Wrangler in the Mathematical Tripos of 1876. He was elected to a Fellowship at Trinity in 1878, and then began in the Cavendish Laboratory under Clerk Maxwell a series of experiments on the mean density of the earth, which occupied him for some twelve years. When he went to Birmingham in 1880 he had the opportunity of organising a laboratory of his own, and in it one valuable piece of physical research after another was undertaken, until his too early death in 1914, at the age of sixty-two years. As a physicist he is most widely known through his memoirs "On the Transfer of Energy in the Electromagnetic Field" (*Phil. Trans.*, A, 1884), and "On Electric Currents and the Electric and Magnetic Induction in the Surrounding Field" (*Phil. Trans.*, A, 1888), both of them included in the present volume, the former culminating in what Sir Joseph Larmor describes as "the famous result that will go down to posterity as Poynting's Theorem". Not only did he succeed in specifying the path of transfer of electric energy from one material system to another, but he was likewise enabled to give for the first time as a very special case the dynamical specification of a ray of light. For some years before his death he devoted a great deal of attention to the problems of radiation and radiation-pressure, and made important contributions to the experimental side of the subject. In these researches he started with the notion of a beam of light as a carrier of momentum, as bearing with it a forward push ready to be imparted to any surface which it meets.

Of the more technical papers which are here collected, I will only say that many of them give even to an outsider like myself a clearer conception of the directions in which physicists have recently been moving, and of the tremendous revolution in physical theories consequent on the discovery of radium, than can readily be obtained elsewhere. But Prof. Poynting inherited from his father (the author of a book, published in 1860, entitled *Glimpses of the Heaven that Lies About Us*, which in its day occasioned a considerable amount of discussion) an interest in metaphysical inquiry; and in not a few of the essays contained in this volume he is to be found wrestling with the philosophical questions that lie at the basis of physics, as also with those questions of philosophical import with which physics may be said to terminate.

The Address to Section A of the British Association in 1899 (pp. 599-612) is, in more ways than one, anticipatory of Whitehead's Address to the same Section in 1916. Poynting here emphatically maintains that the method of physical science consists in searching for likenesses or similarities, in classing together resembling events, and in thus furnishing a concise account of the motions and changes observed. Physical laws, he urges, are just brief descriptions of observed similarities. And he strongly protests (in a manner that reminds one of Lotze) against phraseology encouraging the anthropomorphic tendency to look upon physical laws as though they were expressions of fixed purpose and the resulting constancy of action as though they were commands analogous to legal enactments. *E.g.*, gases are still said to obey or to disobey Boyle's Law, as if it set forth an ideal or perfect gas for their imitation; and radiators to be good or bad, as if it were a duty on their part to radiate well, and as if there were failures on Nature's part to come up to the proper standard.

Nevertheless, both in this Address and in other papers, Poynting was constrained to admit that a certain amount of anthropomorphism is in science inevitable. The ultimate aim of physical research is, he thought, to describe sense-data in terms of sense-data. But for science at its present stage to be confined to description of this sort would mean that great and innumerable gaps would be left in our knowledge; and,

consequently, the human device of throwing hypothetical bridges across these gaps to connect what would otherwise be detached regions is bound to prevail. A "true physicist," a physicist who was a physicist alone, would, no doubt, be content to describe merely what is observed in the changes of energy, to say, for instance, that so much kinetic energy ceases and that so much light appears, or that so much light comes to a surface and that so much chemical energy takes its place. The human mind, however, abhors discontinuity no less than Nature was once supposed to abhor a vacuum, and accordingly imagines a constitution of matter and modifications of it corresponding to the different kinds of energy, such that the discontinuities vanish, and one form of energy can be pictured as passing into another, while yet remaining the same in kind throughout. Thus, then, deserting the field of perceived fact, the physicist constructs a conception of natural mechanism,—a conception which enables him to explain in terms of motions and accelerations all the various occurrences of Nature. So far, the only foundation which has served him for this mechanical explanation has been the atomic and molecular hypothesis of matter; that is to say, he connects observed conditions and changes in gross visible matter by invisible molecular and ethereal machinery. In other words, "while the building of Nature is growing spontaneously from within, the model of it, which we seek to construct in our descriptive science, can only be constructed by means of scaffolding from without, a scaffolding of hypotheses" (p. 607). Such hypotheses are in terms of ourselves rather than in terms of Nature, they are ejective rather than objective (*e.g*, the molecular and ethereal machinery has been designed, so Prof. Poynting believed, partly because our most highly developed sense is that of sight); but, still, the circumstance that the form of a hypothesis may change, as our knowledge extends, lessens in no way its present value as an instrument to aid us in the search for truth. We can recognise to the full how adequately the molecular hypothesis, for example, enables us to group together large masses of fact which, without it, would be scattered apart, and continually enables investigators to formulate new questions for research.

Several of the papers in this volume deal with the molecular theory. No more succinct or lucid account of its history has been written than the article on the "Atomic Theory (Mediæval and Modern)," which is here reprinted (pp. 724-741) from Hastings' *Encyclopædia*, an article which is admirably supplemented by the two shorter papers, entitled "Molecules, Atoms and Corpuscles" (pp. 664-672) and "Mysteries of Matter" (pp. 677-681). While consistently maintaining that the theory is only a hypothesis, which it is at least conceivable some other hypothesis may displace, Poynting confessed that it was to him most difficult to suppose even the possibility of giving up the idea of a grained structure of matter whatever may be the nature of the grains. In discussing the latest theory of atomic structure, he expresses doubt as to whether the mass of electrons can be sufficiently accounted for by the magnetic energy of their charges when in motion. Certainly, he argues, all our measurements of energy involve the idea of mass, and he makes the suggestion that perhaps the magnetic energy in the space round the moving electron may imply the existence of mass in that space to serve as a seat for the energy. Were this so, the electric theory of mass would only take the mass from the inside of the moving sphere and spread it through the outside space, so that we should come back again to the Boscovich-Faraday conception that an atom is wherever its force acts—not at the centre alone, but spread out through all space. But, from the point of view of physics, Poynting did not see his way to reduce, as he put it, all to force. "We think of force as effort, symbolised by muscular effort; and if we

have force alone, it is difficult to assign meaning to effort acting on effort" (p. 730).

In the light of these considerations, it is somewhat surprising to find him contending with vehemence that in purely physical inquiries the idea of 'cause' is quite out of place, and that it would be a gain to clear thinking if we could abolish the word from scientific description (p. 602). For, after all, the idea of 'cause' is surely no more anthropomorphic than is, according to his own showing, the idea of force; in point of fact, there is little doubt that the primitive representation of a causal connexion is derived like the idea of force from the initiation of movement by muscular effort. And if the ultimate aim of physical science is to describe sense-data in terms of sense-data, it is hard to see why 'effort' should be deprived of its significance, for it is as distinctively a sense-datum as a colour or a sound.

The essay on "Physical Law and Life" (pp. 686-698) is in many respects a noteworthy production. Prof. Poynting would constitute a sharp antithesis between physical and mental activity and could not see the remotest likelihood of our ever making out any correspondence between the two. In a physical system, quantitative values can be assigned to the different conditions, and the resulting motion can be foretold from their combination. But we have, he insisted, no such method of measuring motives in the mental life. We have absolutely no means of determining which motive is the 'stronger,' and can only assign such strength to that which ultimately prevails. There is, therefore, no kind of analogy in such a procedure to physical measurement. "Every time an intention is formed in the mind and a deliberate choice is made we have an event unlike any previous event. Freedom of will is a simple fact, unlike anything else, inexplicable" (p. 687).

I must not dwell on the acute criticism of Herbert Spencer's views on the foundations of our belief in the indestructibility of matter and the conservation of energy (pp. 588-598), nor on the valuable Address on "The Growth of the Modern Doctrine of Energy" (pp. 565-575). But, in view of the current discussions on relativity, attention ought to be called to the delightful little piece on "Overtaking the Rays of Light" (pp. 552-556), originally published in 1883. Supposing an observer moving from the earth with twice the velocity of light towards Sirius, Prof. Poynting pictures that observer seeing the events of the last ten years, all in the reverse order. The earth will appear to him to go the wrong way round the sun and to rotate the wrong way on its axis; rivers will appear to him steadily to flow up towards their source, showers of rain to start from the earth and rise towards the clouds; old men will seem to be dying into life, walking backwards all their days, growing younger and younger, until at last they are born out of the world as flourishing babies, at the mature age of three score years and ten. Query, will the relativist maintain that presuming this observer had a fair knowledge of physics and physiology he would yet have no means of ascertaining whether he were moving towards the rays of light or they were moving towards him?

The volume contains a fine portrait of the author and a complete list of his published works.

G. Dawes Hicks.

Psychology and Mystical Experience. By John Howley, M.A., Professor of Philosophy, Galway. London: Kegan, Paul, Trench, Trubner & Co., Ltd. St. Louis M.O.: B. Herder Book Company. 1920. Pp. 275.

There is more in religious experience, according to the writer of this book, than mere psychology is competent to explain; but there is also a residuum

with which it may profitably take to do; and he, as an orthodox Catholic and a psychologist, addresses himself to that. His work falls into two Parts and an Introduction. The Introduction, which is the nucleus out of which, as he tells us, the whole grew, offers a general view of religious experience. Part I. then treats of Conversion, while Part II., going a stage deeper, makes a study especially of mystic experience and is entitled Introversion.

One may gather what has been the generating interest behind the work, readily enough, from the Introduction itself. The Author appears to have gone out to see whether a mystic experience whereof Catholicism might be regarded as the peculiar custodian could be distinguished effectively from the many other things which seem like it but perhaps are not the same. And throughout its whole course, his thought keeps up what might be described as a very able, or at anyrate a very creditable, running fight with divers irregularities in the way of religious experience both within the Church's pale and without. It would even appear at points that it is the Author's opinion that while the "agnostic psychologist," with his merely scientific equipment, may make something of the mysticism of a Molinos or a Madame Guyon, of Quakerism or Christian Science, of Buddhism, Theosophy or what not, he is baffled when confronted by the true mystic experience of Catholicism.

But the Author's acute and learned defence of his views of what constitutes true mystic experience, may probably be found of much more permanent interest than his effort to credit this true mysticism especially to the Catholic Church. It is an important issue intrinsically, which in his hands takes the characteristically ecclesiastical shape of a question as regards the respective merits of two ways of devotion, namely Quietism and the Prayer of Quiet. Presuming that the former is the mother of all disorder, while the latter has the beginnings of true mystic experience in it, he asks what really is the difference of the two. And the answer arrived at in the introductory chapter covers very much of what the Author eventually has to say about true mysticism and false. He finds that in the Prayer of Quiet the mind is in contact with something genuinely "given," while in Quietism it has only worked itself up into a certain state. And the criterion by which he makes the distinction is the presence in the one experience and the absence from the other of a certain degree of attention. The presupposition seems to be that if the soul is dealing with a "given," then that with which it is occupied will not be *merely* given to it but will elicit its attention and activity to some degree. There will be some, however faint, sense of concentrating on it. There will be attention, even if "passive" attention. Where attention is wholly absent [as we should say, where the given is merely given] the experience is a spurious one. This, the Author surmises, is the case with the Quietists. Quietism "would seem to have passivity without attention, to be a rest in self rather than a rest in God" p. 23).

The formula just quoted contains *in nuce* the author's substantial criticism of all the ways of mystic experience which he regards as mistaken, from the Protestant variety of "conversion-phenomena" to the religions of the East. There is an inertia in them. Thus he quotes by way of warning, certain comfortings from Falconi (Letter to a Spiritual Daughter) in the matter of the criteria of a true spirit of devotion.

> "Be careful when doing what I advised you, not to occupy yourself with considering that God is present in your soul and in your heart. For although that is a good thing . . . it would not be to believe it with sufficient simplicity. . . . Neither worry yourself to know whether your prayer goes well or badly. Don't trifle with yourself . . . in thinking whether or no you practise the virtues I have marked for you or other such matters. This would be to occupy your mind with these feeble considerations and break the thread of perfect prayer."

So also Molinos,

> "Annihilation to be perfect, should extend to the judgments, actions, inclinations, desires, thoughts, to all the substance of life."

And Malaval,

> "We must think of nothing and desire nothing for as long a time as possible."

And again Guyon,

> "This divine life becomes natural to the soul. As the soul no longer feels, sees or knows itself, it sees nothing of God, understands nothing, distinguishes nothing. There is no longer love, light, or knowledge."

"Thus," proceeds the Author, commenting on these errors, "a type of contemplation which had so largely contributed to the sanctification of the companions of St. Chantal was perverted into a system of psychic inertia." And having found in mental inertia the root of the evil he proceeds to find here also a characteristic feature of current non-Catholic systems generally. "We have not only our Quietists to-day," he says, "but we have this induced passivity, this psychic kenosis, as part and parcel of processes employed by spiritists, faith healers, Christian Scientists, New Thought folk, indeed of all seekers after the psychic Beyond who are unwilling to be simple, humble, and obedient. They look to find the Beyond and they find themselves, to their own destruction."

A touch of the nastiness of the official ecclesiastic is, we are afraid, inseparable from the tone of this whole book. But it would be a pity to let this or any other adventitious feature conceal from us the importance of the task of distinguishing true and false in just the region where the author is trying to distinguish them. It is fairly plain that there is a good mysticism and a bad, however unlikely it is that any one body of people should have a monopoly of the former. But has our Author got hold of the distinction? It is possible that he has. If so, it is highly unlikely to prove in the end to be a line of distinction between sect and sect of mystics, as he thinks, but simply one between the mysticism which is truly religious and that which is not, a line of distinction falling within all the sects. If this point can be made, then much interest attaches to the author's religious standpoint. All recipes for the treatment of the soul, whether derived via St. Ignatious or via Freud, would appear to be double-edged weapons, capable of the basest uses as well as the best; and the only guarantee against their detrimental use would seem to lie in the circumstance that these powers are recognised as being derived from something which is, in some sense, as our Author insists, beyond psychology. We should at least have the assent of this Author to the view that all psychological medicine must in the last resort be religious; that that which places such instruments as its in the discoverer's hands, must itself powerfully control the discoverer's will, if the discovery is not ultimately to do harm.

J. W. Scott.

The Psychology of Functional Neuroses. By H. L. Hollingworth, Associate Professor of Psychology in Columbia University. New York: D. Appleton & Co., 1920. Pp. xiv + 260. No price given.

This book is based on experience gained by the author at U.S.A. General Hospital No. 30 during the latter part of the war. This hospital was devoted exclusively to persistent psychoneurotic cases, of which about 1200 consecutive examples were closely studied. Prof. Hollingworth is not a medical man and was not concerned with the treatment of patients. His function as Director of the Hospital Psychological Service seems to

have been to organise a systematic study of patients by means of intelligence tests and analogous methods. The large number of cases available for observation has enabled him to collect a mass of statistical material which cannot fail to be of interest and value to students of the subject. Moreover, as he justly observes, the declaration of the armistice about midway in the course of the investigation "constituted, on a wholesale scale entirely unanticipated, a magnificent experiment in psychotherapy. The therapeutic effects of this event were not only observed in the casual way so frequently reported, but quantitative measure was secured of the differential effects in the case of the various diagnostic groups."

It is not possible even to summarise here the statistical results obtained, which occupy some thirty tables in the book, but it is probable that few more comprehensive surveys of the intelligence and mental age of different types of psychoneurotic have been made, if, indeed, the present data have any parallel at all. Of considerable interest also is the chapter devoted to "Irregularity of Profile" in which it is made clear that psychoneurotics give test performances which are clearly distinguishable from those of mentally deficient persons, even although the mean score for a number of tests is the same in each class. Whereas the mentally deficient show low performances all round, the psychoneurotics produce the same mean result by scoring abnormally low in some tests and quite high in others. They show, in fact, a high degree of 'scattering' and the average deviation of their scores from the median is much greater than for mental defectives. In this way it is possible to arrange types of disorder in a series of which each number approximates more closely to all-round mental deficiency type. The order given by Prof. Hollingworth is: Hysteria, Epilepsy, Concussion, Neurasthenia, Psychoneurosis, Constitutional Psychopathy, Mental Deficiency. Provided that we can be quite sure just what we mean by these diagnostic terms it seems as if this method of research might well prove fruitful.

Enough has been said to show that the book contains plenty of facts for the student of functional disorders, and it is necessary to pay some attention to the earlier and more theoretical chapters. These, it must be confessed, are less satisfactory than those just dealt with. Prof. Hollingworth rightly deplores the tendency observable in some quarters to take refuge in technical jargon instead of attempting to give true explanations of phenomena. He deprecates, not wholly unjustly perhaps, the use of such words or phrases as 'symbolism,' 'regression,' 'transfer of libido,' 'siphoning of affects,' etc., and proposes to substitute the concept of 'redintegration'—a term borrowed from Hamilton and slightly modified to suit modern psychological thought. By this term is meant the tendency of a single repeated element of a former complex situation to evoke in a psychoneurotic the whole complex reaction which originally corresponded to that situation; as, for instance, when the banging of a door causes a patient to react in every respect as he did in a battle-situation of which shell and gun explosions were one feature. This mechanism is, he thinks, adequate to bear the whole weight of explanation in the realm of the psychoneuroses, but this optimistic view will scarcely be shared by psychologists in general. To say that a single element *tends* to recall the whole of which it once formed a part and to evoke the corresponding complex reaction is a truism which amounts to no more than a re-statement of the Law of Association; it does not in any way explain why, in substantially identical situations, one man should become paralysed, another mute, a third deaf, and a fourth blind, although it makes it easy to understand why, when partially recovered, each should relapse into his own form of derangement for the same apparently inadequate cause. Apart from these and similar criticisms which seem

fatal to the conception as an explanatory hypothesis, there is nothing to be said against the way in which the idea is worked out, and the chapter on the Levels of Redintegration Response is not uninteresting from the point of view of general psychology.

It is however for the facts rather than for the theories to be found in it that the book will be helpful.

W. Whately Smith.

Military Psychiatry in Peace and War. By C. Stanford Read, M.D. (Lond.). With two charts. London: Lewis & Co., 1920. Pp. vi, 168.

Of the many psychological books resulting from the War, this is one of the best; for the writer is fully equipped in normal and morbid psychology; he has had charge of neurological wards and has visited all the war mental hospitals in France and Great Britain. The book is at once a contribution to the positive study of insanity and an important commentary on the "psychogenic origin" of the psychoses. "Those who take up an essentially materialistic standpoint see the essential factors in the toxins produced by disease and exhaustion, in the inhalations of noxious gases, in the effects of direct or indirect concussion brought about by high explosives. Others believe that the main bulk of the psychoses are psychogenic in origin and look to mental conflict as the great factor to study. I hold this latter view-point and shall endeavour to show that this is as true in the psychoses of war as it is of peace" (p. 25). Dr. Read first analyses the psychology of the soldier. The chapter is an illuminating practical application of Freudian views. He comments on the confusions due to the failure of the academic alienists of the past to distinguish between the insanities proper and the psycho-neuroses. "Before the Commission which sat to enquire into the recruiting problem, in the evidence given by the military authorities, the opinion was freely expressed that if a man was fit enough to do any form of work in civil life, he was fit to do that work in the army. Never was there a greater fallacy. Large numbers of cases which have been returned from overseas with psychopathic symptoms freely illustrate the falsity of this statement. The mental factor has not had anything like the consideration it should have received" (p. 24). These ideas are applied in detail to leading forms of insanity, for example, dementia præcox, paranoid states, confusional states, manic depressive states, mental deficiency, alcoholic psychoses, epilepsy and epileptic psychoses, psycho-neurotic disorders, malingering, suicide—all as affected by war conditions. The book is well documented from other researches. From every point of view, it deserves to be placed among the best handbooks of psychiatry.

W. L. M.

Psychologie de l'Enfant et Pédagogie Expérimentale. By Dr. Ed. Claparède, Professor of Geneva University. Eighth edition, with a complementary preface. Geneva: Kundig, 1920. Pp. 1 + 570.

This new edition of Claparède's well-known work on educational psychology contains an introduction of considerable length in which the author endeavours to define clearly his attitude towards his subject. He urges that education must be established upon a scientific basis which takes "knowledge of the child" for a starting-point. Hitherto emphasis has been laid upon the subject taught rather than upon the child to whom it is taught. Thus we discuss whether education should be classical, scientific or vocational, and ignore the most important consideration of all, *i.e.*, that

no scheme of education can succeed which is not adapted to the mental and moral life of the child.

Claparède deals in detail with current objections against "scientific pedagogy":—

1. The "common sense" objection that the power of judging and weighing educational values possessed by the ordinary individual is adequate will not hold good, for on every educational problem that has been proposed "common sense" gives conflicting verdicts.

2. It is true that the best educators are born rather than made; but at the same time the teacher needs exact knowledge of his craft, just as the "born musician" needs a knowledge of technique in music.

3. Some say that "experience is the best and only school". What is really required is a knowledge of the way to profit by experience, and that knowledge demands of the teacher a study of the human material with which he has to deal.

Claparède points out that the demand for the application of experimental psychology to education has come mainly from the teachers themselves, who are of all people the best acquainted with the defects of the present state of affairs.

The book as a whole is by now too well known to need detailed description. It contains a vast mass of material, some of which is perhaps rather uncritically reported, but most of which is interesting. The presentation is clear, and what general discussion is entered upon is for the most part extremely well-conducted. It may safely be said that there is hardly another book which contains so much information of use to the psychologically-minded teacher; and the information given is always expressed in a most attractive and suggestive manner.

F. C. B.

Persönlichkeit und Weltanschauung: psychologische Untersuchungen zu Religion, Kunst und Philosophie. By Richard Müller-Freienfels. Leipzig and Berlin: B. G. Teubner, 1919. Pp. xii, 274.

This work, which the Preface assures us was substantially complete when the War broke out, is a singularly well documented and persuasive plea for what the author calls 'psychological relativism,' meaning thereby what is otherwise known as personalism or humanism. It aims at showing "to an extent not hitherto attempted, that a man's *Weltanschauung* is the necessary result of the psychological endowment his life reveals" (p. 264). It attains its aim by distinguishing a number of psychological types and tendencies, such as men of feeling, action and thought, depressed and exalted, dynamic and static, aggressive and pacific, visualising, audile and motor, concrete and abstract, pluralistic and monistic, types, tracing their manifestations historically in the actual lives and works of artists, philosophers and religious leaders, and concluding with a more detailed study of the personality of Luther, Goethe, Wagner, Dürer, and Kant, and its influence upon their work. The book is well written, and makes out its case. It should prove a valuable corrective of the one-sided, fanatical and exaggerated 'absolutism' that was rampant in the German philosophic world before the War, all the more on account of its conciliatory, and even apologetic, tone. At the same time the author contends that his relativism is *not* scepticism; it merely recognises the facts that truths for man are not absolute, that no single doctrine is valid for literally all and that the various ultimate attitudes towards the world are irrefutable, and appeal variously to different characters, and it leaves open the possibility that the total truth may eventually be composed by collecting together the personal views of all (p. 273). He might well have added two more

points; one that absolute agreement, if it were possible, would yield a world dull and intolerable, like a chorus in which every member sang precisely the same note, the other that the greater the variety of views tolerated, the greater and more certain would be the selection of those that had superior value, either intrinsically or relatively to the personalities to which they appealed.

F. C. S. Schiller.

Fugitive Essays. By Josiah Royce, with an introduction by Dr. J. Loewenberg. Harvard University Press, 1920. Pp. 429.

Most of these essays—all, in fact, except the last three of them—were written between 1879 and 1882. As the reader of James's *Letters* will remember, Royce, at this period, was a young man of less than thirty, eagerly sharpening his philosophical spurs, but feeling himself cabined within the immensities of the Pacific coast, and complaining, indeed, that he was 'the solitary philosopher between Behrings' Strait and Tierra del Fuego'. 'The World Spirit,' however, to quote him once more, 'found him at his tasks in a certain place that looks down upon the Bay of San Francisco,' and was so far propitious to him as to see to the publication of most of these essays. Indeed, it found a home for some half a dozen of them locally in *The Californian* and in *The Berkeley Quarterly*.

Neither the editor of these essays (Dr. Loewenberg, of Berkeley, whose piety as a Californian blends with his admiration for Royce's life work and reaches a point not far short of idolatry) nor anyone else would claim that these *Fugitive Essays* attain the level of Royce's mature work. What is claimed for them is that they are valuable in themselves, since Royce 'simply could not be trivial,' and that they show a very interesting and signal continuity in the progress of Royce's philosophy. The editor attempts to demonstrate this continuity in a valuable but slightly ponderous introduction of some forty pages, and he certainly succeeds in giving chapter and verse for his opinions, although he seems, to the present writer, to read somewhat more into his extracts than they can legitimately bear.

Opinions, no doubt, will differ concerning the value of the essays themselves, and some may even think that it is always a sound rule to leave the ephemeral and comparatively immature work of distinguished men in the obscurity which the authors have not seen fit to disturb. On the other hand, Royce was so clearly one of the great leaders in the thought of a continent, and so responsive to the ideas of his time, that the history of his philosophical development has a great deal of significance for the whole story of American philosophy in the generation before the war, and these essays are very welcome on this account. Royce himself wished for no formal biography, apparently because he thought that biographies of the usual kind are only impertinent chronicles of irrelevant accidents. What counted, he thought, was a man's work and a man's mind. But he had a high respect for history, and he would have been the last to belittle any attempt to illustrate the way in which the World Spirit seizes hold of those it has chosen.

John Laird.

The Moral and Political Philosophy of John Locke. By Stirling Power Lamprecht, Ph.D. New York: Columbia University Press, 1918. Pp. viii, 168.

This work comprises three books, which treat respectively of (1) The tradition in moral and political philosophy before the time of Locke; (2)

The moral philosophy of Locke; (3) The social and political philosophy of Locke. In the introductory book Hobbes and Filmer are dealt with at some length, the remaining chapters being devoted to a more general exposition of the current conception of the 'law of nature' and of the views of the seventeenth century Deists in their bearing on ethics. This cannot be regarded as a complete account of the historical setting of this aspect of Locke's Thought, and it is to be regretted that Dr. Lamprecht did not see his way to deal more fully with the theories of Cumberland and the Cambridge Platonists in this country and with Grotius and Puffendorf among continental thinkers, to none of whom is there more than an occasional reference.

The exposition here given of Locke's moral philosophy is the most elaborate attempt which has yet been made to elucidate his thought on this subject. The writer has made a careful study of his text and has done well to supplement the scanty indications of the *Essay* by reference to Locke's minor writings, including his answers to some of his early critics. But while he thus presents us with all the relevant materials, he does not seem to me to be equally successful in his interpretation of them. Locke's ethical theory on the face of it contains elements which are not usually found in combination and are not easily reconciled. Under such circumstances the first business of the historian is to endeavour to ascertain how the different elements were related to each other in his own thought. Only when this has been done can the degree of coherence attained be profitably discussed. We may not be able at the end, in Dr. Lamprecht's words, "to fit all he said into one harmonious whole," but we are not driven to the alternative of supposing that he committed himself to a number of different and inconsistent positions, which he never thought of relating to each other. On the contrary, it seems clear that the different elements of his theory were regarded by him as complementary to each other. Thus, while maintaining that the essential part of morality was demonstrable in a manner analogous to that of mathematics, he held that the abstract cognitions thus obtained possessed in themselves no motive force, and moreover lacked the essential element of obligatoriness until they were brought into relation to the divine will. On the other hand, it was equally vital to his position that the content of the divine will is to this extent ascertainable by the use of reason. I can find no basis whatever for the suggestion that moral distinctions were at times regarded by him as the products of arbitrary will, or for the view that the nature of virtue was sometimes thought to be determined by the feeling which he took to be the only possible motive for its pursuit. In his account of "the content of Locke's rationalistic ethics," Dr. Lamprecht distinguishes three forms of his theory, according to which morality is based on (1) The consideration of mixed modes; (2) The Law of Nature; (3) The idea of God. But here, again, (1) and (3) were not for Locke alternative theories, but complementary aspects of any complete moral doctrine, while the very conception of a Law of Nature implied for him that it was both ascertainable by reason and an expression of the divine will.

When we pass from Locke's ethics to his social and political philosophy, the materials become of course much more ample. Dr. Lamprecht devotes separate chapters to Locke's conception of the State of Nature, his theory of political society and his views concerning toleration and punishment. Of each of these he gives a clear and adequate account.

J. G.

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VIII.—PHILOSOPHICAL PERIODICALS.

British Journal of Psychology. Vol. x., Part 4, July, 1920. **S. Wyatt** and **H. C. Weston** contribute a paper on 'A Performance Test under Industrial Conditions'. [A report to the Fatigue Research Board.] The test, applied to a group of cotton operatives, was made to resemble closely the operations involved in bobbin-winding and was continued for four weeks. The results gained bear chiefly upon the method and value of such investigations. The authors concluded that the time required to perform a given task is the resultant of many factors besides fatigue, and the effects of fatigue may be considerably reduced or even entirely hidden by the effects of these other influences. Fatigue can only be clearly indicated when it has developed to such an extent as to become the dominant factor in the complex situation. Even though the operations involved in the test are similar to those which the winders are in the habit of performing in the course of the ordinary winding operations, about three weeks must elapse before the winders become adapted to the test conditions. The effects of practice are distinctly noticeable throughout the test period, and the least variation from the usual conditions of labour has a disturbing effect upon the results. Great individual differences appear even among four workers tested. The results appear to become more uniform and similar as the test progresses, but the afternoon results seem to be more irregular than those of the morning. Thus individual differences decrease as the result of practice, but the day's work has a variable effect upon different individuals. As a means of indicating the amount of fatigue produced in any individual by the industrial conditions under consideration, the test is useless. The following variable disturbing factors became evident; (*a*) variations in illumination at the time of the test, which may more than neutralise the indications of fatigue; (*b*) variations in humidity and temperature and air movements; (*c*) variations in the mood of the individual: disturbing thoughts, of worries or of pleasure, may hinder work; (*d*) nervousness in an operative caused by presence of an investigator. **B. Muscio** in 'Fluctuations in Mental Efficiency,' [another report to the Industrial Fatigue Research Board], concludes, as the result of experiments on medical and other students, that the capacity to perform various mental tests (involving a continuous demand on voluntary attention) may vary in any given individual at different times independently of his working or resting, and that these variations are probably different for different capacities, suggesting varying organic rhythms. At the same time it seemed evident that academic study did lower the capacity for interpolated tests involving continuous attention, such as the crossing out of certain selected figures in a page of figures, each in a special way. The other papers in the number, which are short, are as follows: **J. E. Turner**, 'Note on Professor J. Laird's Treatment of Sense Presentations'; **J. Laird**, 'Reply to Mr. J. E. Turner's Note'; **William Platt**, 'Two Examples of Child-Music'; **Ernest W. Braendle**, 'A Voice Reaction Key' (with One Diagram); **William**

McClelland, 'The Distribution and Reliability of Psychological and Educational Measurements'; **Godfrey H. Thomson,** 'The General Factor Fallacy in Psychology'. Vol. xi., Part 1, October 1920. Five writers contribute a symposium on 'Mind and Medium in Art,' presented at the Congress of Philosophy in Oxford, September, 1920. **Charles Marriott** sets forth the theory that the true criterion of beauty is the appropriate use of the material handled. The artistic creation "must be adapted to the material in which it is represented and to the convenience of the hand in using that material. Thus, we expect a broader treatment of landscape in water-colour than in oils because the, so to speak, 'natural' play of water-colour is in broad washes." For him practical and æsthetic reasons are at bottom the same thing. The writer claims that his view has the advantage that it abolishes all the distinctions between one art and another on the grounds of the representation or non-representation of nature, and also that it abolishes all the artificial and uncertain distinctions between various forms of the same art, such as decorative or pictorial painting, realistic or romantic poetry or drama. The distinction between one art and another lies in the material used—words being the "material" of literature. **A. B. Walkley** criticises this view of art as being an external one, and supports the expressionist theory of Croce, even to the extent that beauty exists to the fullest degree in the mind of the artist before the material object is created. **Henry J. Watt** argues for the essentiality of a basis of sensory beauty in any work of art: he draws upon music for many illustrations and criticises equally the utilitarian tendency of Marriott and the "nerveless abstractions" of Croce, supported by Walkley. **Edward Bullough** emphasises the distinction between art in its static aspect —the objective world of art—and art in its dynamic aspect, *i.e.*, in artistic creation and æsthetic appreciation. The connecting link between the medium (material) and the vision of the artist is technique—the "adaptation of the medium to the vision". The vision must be conceived in terms of the medium, which therefore must profoundly affect the artist; but the farther his artistic imagination breaks away from the tradition of his art and becomes more and more his inner personal creation, the deeper and the more sweeping the changes which the simultaneously growing power of his technical imagination introduces into his handling of the medium. Thus new technical processes, new tools and methods, new ways of achieving effects and new solutions of material difficulties are discovered and minister in their turn to the wealth of his artistic imagination. **C. W. Valentine** emphasises the complexity of æsthetic appreciation. The views of Marriott and Walkley (with Croce) like most theories of the beautiful, err in selecting only one aspect of the beautiful, which is inadequate, though true so far as it goes. Croce underestimates the importance of the direct appeal made to us by such sensory elements as sounds and colours, apart from creative activity in the appreciator. In many cases such stimulus from without is essential, and even the artist often embodies his imaginations in a medium not only to communicate them to others but to make his own æsthetic experience more complete. Five papers on the subject 'Is Thinking Merely the Action of Language Mechanisms' (another symposium at the Oxford Conference) are contributed by **F. C. Bartlett** and **E. M. Smith, Godfrey H. Thomson, T. H. Pear, Arthur Robinson,** and **John B. Watson.** The number also includes the following papers: **J. C. Flügel,** 'On Local Fatigue in the Auditory System'; **Daniel J. Collar,** 'A Statistical Survey of Arithmetical Ability'; **W. T. Waugh,** 'The Causes of the War in Current Tradition'; **Henry J. Watt,** 'A Theory of Binaural Hearing'.

INTERNATIONAL JOURNAL OF ETHICS. Vol. xxxi., No. 1. October, 1920. **M. C. Otto.** 'Morality as Coercion or Persuasion.' [Opposes Prof. McGilvary's conclusion that might makes right, but maintains relativity of morality. Emphasises distinction between persuasion, in which the compelling force is exercised by the ideal itself, and coercion in which it is exercised by something external. The writer concludes that the fundamental problem of morality is to secure the richest total of satisfied desire, and that the application of intelligence by way of adjustment among conflicting ideals promises a better issue than warfare.] **T. H. Proctor.** 'The Motives of the Soldier.' [An estimate of the motives which (1) induced the citizen to become a soldier and (2) sustained him during the protracted war, and of the effects of war on him as an ex-service citizen. States that though English moral standard was exceedingly high few were influenced by it, and that fear was the predominant motive in the majority of cases; in warfare soldier sustained by fear and esprit de corps; as a result of war left infinitely poorer morally and drained emotionally.] **Rupert Clendon Lodge.** 'Plato and the Judge of Conduct.' [Attempts to harmonise views of Cambridge and modern Platonists in the view that everyone philosophises, some more than others, and that "so far as their judgment is philosophical so far is it valuable".] **Ruth M. Gordon.** 'Has Mysticism a Moral Value?' [Emphasises ego-centric attitude of many mystics, and suggests that this deprives mysticism of value through neglect of social nature of morality; admits value for certain individuals provided that it is not complete.] **Henry T. Secrist.** 'Morale and Morals.' [A brief account of morale in the war, and its part in reinforcing morals through enlisting compelling force of morale on side of morals; suggests applications to civic life.] **Eugene W. Lyman.** 'The Ethics of the Wage and Profit System.' [Maintains that under present social conditions the enterpriser is privileged in the economic scheme, below him hierarchy of inequalities of opportunity; if supported by theory of self-interest as only economic motive reinforces anti-social motives; suggests as solution socialising of economic motive and democratising of economic method.] No. 2. January, 1921. **Frank Chapman Sharp.** 'Some Problems of Fair Competition.' [Assuming that fair competition is seeking success by offering better service than competitors, and that this is the best solution of the double problem of producing the maximum desirable of goods and of distributing fairly, discusses *inter alia* problems of boycott, special rebates, tying clauses.] **Victor S. Yarros.** 'Is there a Law of Human Progress?' [Suggests that existence of ideals and of efforts to attain them is evidence of progress, maintains that modern ideals are infinitely higher than those of Greece, and that progress is characteristic of the human will—almost a law.] **J. E. Turner.** 'The Genesis and Differentiation of the Moral Absolute.' [Advances the view that since mind is a whole, discovering ideals, each at first an absolute, all these must be related to each other and to the all-inclusive whole; discusses the error of isolating intellectual, æsthetic and moral ideals, raising the problem as to how the absoluteness of an all-inclusive ethical criterion can be maintained, and suggests that personality as an absolute within the Absolute, in touch with it at all its confines, really constitutes the basal moral criterion.] **I. W. Howerth.** 'The Labour Problem from the Social Standpoint.' [Shows how problem is partially apprehended by Labour, Capital and Consumer; maintains that social well-being gives the only complete view of the problem of supplying economic needs of society with least expenditure of time, means and energy, and that progressive solution is possible by elimination of unnecessary labour through legislation, education and organisation of available

working power thereby making labour attractive.] **J. D. Stoops.** 'The Instinct to Workmanship and the Will to Work.' [Accepts instincts as basis of will energy, will as organisation of instincts, emotions and sentiments; shows the need for organisation of work so as to utilise energy of basic instincts and to develop organised personality; dissociation of will and instincts of workmanship and property involves disorganisation, so that main problem is discovery of inherited capabilities along which fullest development of personality is possible.] **Henry S. Curtis.** 'The Mother's Confessional.' [Justifies sympathetic discussion between mother and children as relieving fears and reducing unhappiness.] **Allan L. Carter.** 'Schiller and Shaftesbury.' [Shows essential similarity derived from Plato in doctrine of harmony as basic principle, and in general attitude to ethical problems, *e.g.*, relation to art, immediacy of moral perception, jural morality, etc.; discusses main divergences.] No. 4. July, 1921. **Victor S. Yarros.** 'Contemporary American Radicalism.' [Upholds Radicalism—the proposing of fundamental far-reaching measures—as inevitable and desirable if the civilisation of America is to be saved and that of Europe cured, particularly with reference to the economic system and political organisation of which the basic ideals are civil individual liberty and equality of economic opportunity.] **Emile Boutroux.** 'The Immediate Future.' [A plea for universal classical education for the development of judgment, of moral consciousness and sense of the ideal, rather than of immediately utilisable capacities, in order to maintain on a footing of equality the rights of nations as moral individuals despite inevitable inequalities in extent and power.] **Henry Nelson Wieman.** 'Personal and Impersonal Groups.' [Criticises Prof. J. E. Boodin's view that small personal groups are the ultimate units of civilisation; maintains dyadic nature of human welfare, the fulfilment of central organised tendencies and of peripheral unrelated tendencies, involving two incommensurable values, the one spiritual the other material; of these the former is increasing in importance but it is necessary to recognise the value of the impersonal.] **Claude C. H. Williamson.** 'Progress.' [Maintains that progress is not a law of human history but is product of persons who will to serve, that there is continuity in the process of change within the whole, revealing a growth in value; emphasises importance of succession of men of genius as condition for continuation of progress, and suggests that Christian view of progress is more in agreement with human nature than pessimism or an optimism regarding progress as automatic.] **John H. Mecklin.** 'The Philosopher as Social Interpreter.' [Holds that American philosophers enjoying the quiet backwaters of philosophic calm are largely responsible for present moral bankruptcy and aimlessness of American life; suggests that they need to live 'in rapport' with their fellows, to cultivate the historical attitude and to study immediately pressing social problems, piecemeal, if necessary, leaving till later the task of synthesis.] **Benjamin Ives Gilman.** 'Death Control.' [Analyses reasons why few can face the problem deliberately and suggests that with spread of belief in Being of universe a rational hastening of death as solution of problem would be viewed in hopeful expectancy.] **E. A. Burtt.** 'Present-day Tendencies in Ethical Theory.' [Treats question as to relativity or absoluteness of moral judgments and standards as outstanding question; if approached from ethical standpoint, relativity appears inevitable, if from universal point of view tendency towards absolutist position, either materialistic or idealistic; alternative, pragmatic standpoint attempting compromise between relativity and universality, with ethical standard a type of continuity inherent in the structure of things.]

Revue de Philosophie. January-February, 1921. **Th. Mainage.** 'L'Histoire des Religions à l'Institut Catholique de Paris.' [Address delivered at the opening of a new course on the comparative history of religions. The address contains a discussion of the principles of Evolutionism in religion. The thesis maintained is that Evolutionism is false, because there was no evolution in religion. The plan of the new course is mapped out.] **R. Guénon.** 'Le Théosophisme : Histoire d'une pseudo-réligion.' [*Theosophism*, not *theosophy*, the true name for the professions of the 'Theosophical Society'. Details about the origins of the Society given to supplement those in a previous article in this review. They chiefly concern the relations of this with other societies of a more or less occult character.] **P. Vignon.** 'Pour la philosophie des êtres naturels. Interprétation aristotélicienne de l'atomisme contemporain.' (*Conclusion.*) [A rapid and condensed summary of the conclusions reached by the author in the preceding articles.] **G. Voisine.** 'Un nouveau traité de Logique. (*Fin.*)' [M. Goblot (the author reviewed) says (*a*) that all induction is based on our confidence in *determinism*; (*b*) that determinism supposes the constancy and universality of order, without the possibility of exceptions, although the possibility of belief in miracles, etc., shows that determinism is a postulate and not a self-evident principle ; (*c*) that, if miracles, free will, etc., are possible, induction is impossible ; (*d*) that *finality* does not suppose an intelligence. These positions attacked. In induction we presuppose the existence of *natures* (this idea being formed from experience). The process of induction consists in discovering the laws according to which these natures act. A law is a rule for the activity of a being, and in its metaphysical basis is unchangeable, but it does not apply except under definite circumstances. Miracles, etc., do not affect the law but alter the circumstances. The *natures* have definite tendencies—hence *finality*, which may be conscious (intelligent) or unconscious. The latter presupposes an outside intelligence. Finality, properly understood, does not exist without an intelligence.] **F. Peillaube.** 'Inauguration de deux nouvelles chaires à la Faculté de Philosophie de l'Université libre de Paris.' [Report of the author (Dean of the Faculty) presented at the inauguration of the chairs of *Droit naturel* and *Principes chrétiens du droit des gens*, founded by the 'Fondation des morts de la guerre à l'Université Catholique de Paris'.] **Th. Greenwood.** 'Le Congrès de Philosophie d'Oxford.' [First part of an account of the congress of September, 1920. The author takes the papers and discussions in turn, gives their substance and occasionally adds a short criticism.] March-April, 1921. **R. Guénon.** 'Le Théosophisme : Histoire d'une pseudo-religion (*Suite*).' [The basis of all theosophism is the Mahâtmâs or "masters". For the esoteric section the occult phenomena are also essential. Mme. Blavatsky's influence and power of suggestion described. Her so-called *Esoteric Buddhism* is a medley of misunderstood Neo-platonism, Gnosticism, Jewish Cabala, Hermetism, Occultism, with scraps of Oriental doctrines, all grouped round two or three ideas of modern and purely Western origin. The principal heads of theosophical teaching are : (i) Evolution, fantastically worked out, including (ii) Re-incarnation. (Both ideas, in the author's opinion, of quite modern origin.) (iii) The law of *karma* (= retribution—a mistranslation). Theosophism and similar systems unbalance the mind and are therefore a real danger. Theosophism also discredits Oriental doctrines with Europeans, and the Western intellect with Orientals.] **G. Fournier.** 'L'Influence de Coleridge sur Stuart Mill dans le problème de la Nécessité et de la Liberté.' [J. S. Mill followed Coleridge in rejecting the social theories of Hobbes and Rousseau, and in looking to history for the method of reconciling necessity and liberty. Necessity rules the average, liberty accounts for individual divergences. Mill's

theory expounded.] **A. Dièς.** 'Revue Critique d'Histoire de la Philosophie antique.' [Conclusion of an article, of which the last instalment was in April 1913. Short notices of thirty-nine books in various languages, on Plato, Aristotle, and later philosophers.] **F. Monnies.** 'Le Désir du Bonheur et l'Existence de Dieu.' [Discussion of the argument for the existence of God drawn from the desire of happiness. The author gives his version of the argument and then shows the invalidity of two other forms, *viz.*, the argument based on the desire of the *Supreme Good*, and the argument from *Immanence*. His argument is: Happiness is the object of a *natural desire* in man. (Terms defined, and proposition established from experience.) A natural desire cannot be vain. ((i) Established *a priori* from the premiss that everything is capable of explanation, and (ii) confirmed by analogy with natural tendencies in plants and animals—there exists that whereby these tendencies can be satisfied.) For the explanation of this desire a future life and a Benevolent Intelligent Providence are required. The argument does not lead to the existence of God as the Supreme Good.] **Th. Greenwood.** 'Le Congrès d'Oxford (*Suite*).' [In this part the author limits himself usually to a report of the discussions. He ends by remarking an absence of common ground in philosophical discussions, and a connexion between natural sciences and modern philosophy.] May-June, 1921. **P. Doncœur.** 'Le Nominalisme d'Occam : Théories du mouvement, du temps et du lieu.' [The Scholastics held movement to be *transitus a potentia in actum*, a reality which is neither pure act nor pure potency. Occam explains it as "a form acquired part by part and connoting the negation of all parts still to follow". With him it is not a physical reality but a logical concept. He identifies Time with movement, and he identifies Place with the body occupying the place and defining its own bounds 'by not extending its parts further'.] **R. Guénon.** 'Le Théosophisme : Histoire d'une pseudo-religion (*Suite*). [The history of theosophism traced from the advent to power of Mrs. Besant, through the attempts to educate new "messiahs," and to found propagandist associations such as the 'Order of the Star in the East,' up to the latest connexion between the notorious Mr. Leadbeater and the 'Old Catholic' Bishop A. H. Mathew.] **J. Pacheu.** 'L'École du Cœur.' [The phrase means commonly the practice of spirituality in order to remove disorderly affections. But the heart may be more strictly a school, since love and knowledge of God interact, love giving light and light stimulating love. This seen especially in mystical union, which is wholly one of will, yet thereby the understanding is enlightened beyond its natural powers.] **B. Romeyer.** 'L'Idée de la Vérité dans la Philosophie de S. Augustin.' [Review of a book by Ch. Boyer. Everything exists as either Pure or participated Being. Our mind, since it has to conform to its objects and is therefore inferior to them, can have only participated being. Its objects, in turn, must either be Pure or participated beings. Hence ultimately we are led to God. Knowledge is a participated expression of the Divine Ideas. 'Participation' secures alike against Pantheism and Ontologism. But, do not the Principle of Sufficient Reason, and the *Causa Exemplaris* offer an even more fundamental explanation?] **P. Vignon.** 'La Philosophie de l'Organisme.' [A favourable review of the French translation of H. Driesch's well-known book.] **A. Ancel.** 'L'Influence de la Volonté sur l'Intelligence dans l'Exercice de la Pensée et l'Adhésion au Vrai.' [The will can and must influence the intelligence in assent whenever there is not complete intrinsic evidence. The act is legitimate if confined to compelling assent, not if extended to affecting the nature or firmness of assent.] July-August, 1921. **X. Moisant.** 'La Bienveillance Divine d'après Saint Thomas.' [An exposition of St. Thomas'

teaching on the Benevolentia Dei—the Divine Will loving His Creatures. The author explains the opposition between the Divine Benevolence and the human ideal of a selfless love, of an unlimited and impartial bestowal of benefits. The fact that the Creator is the end of the Creature reconciles all contradictions (*Theocentrism*). On St. Thomas' theory the love of self is not denied, nor judged to be evil (*Ecstatic* theory), but is included in the love of God (*Physical* theory). Man, in seeking good, is seeking God; though the Fall has blinded him to his true end. The author also shows how God's love *surpasses* the human ideal in efficacity, disinterestedness and other qualities.] **R. Guénon.** 'Le Théosophisme (*Suite et fin*).' [The final sections of this account deal with the relations of theosophism with the various branches of what is called 'irregular' Free-Masonry, its widespread auxiliaries among humanitarian, vegetarian, and pacificist societies of all classes, and, in India, its political connexion with British Imperialism.] **Th. Greenwood.** 'La Méthode Pelman.' [Is the undeniable success of Pelmanism due to the intrinsic value of its methods? By a detailed analysis, the writer shows that, while disclaiming any but a practical rôle, Pelmanism is employing time-honoured principles of Aristotelian realist philosophy.] **H. Amiard.** 'Une réfutation du Panthéisme.' [Critique in praise of Father Valensin's article on Pantheism in the *Dictionnaire d'Apologétique*, commending especially his clear exposition of the subject, and the soundness and originality of his method of refutation. For the latter, philosophical Pantheism is distinguished into *Panthéisme savant* and *Panthéisme naïf* according as it has, or has not, taken account of the difficulty of identifying a material finite world with a spiritual infinite God. The *Panthéisme savant* cannot be refuted *a priori* in view of the Incarnation, but it is shown to be unproved, and to be irreconcilable with the *fact* that God and individual men are distinct *responsible* subjects.]

IX.—NOTES.

PROF. BROAD ON THE EXTERNAL WORLD.

May I state a difficulty which I find in Prof. Broad's most instructive paper on the External World in the October Mind?

It is, if I understand him rightly, a point which I discussed in my *Logic*, ii., 307. But he does not carry it out to the difficulty which I perhaps wrongly found. The question is whether sensa can be body-dependent in a certain high degree, being partially conditioned by the traces left in the body by past experiences (Mind, pp. 391, 395) without being necessarily mind-dependent also.

My difficulty (*Logic*, *l.c.*) was that a bodily response of this kind, involving the operation of influences from past experiences which are active in present sensation, cannot, so I thought, be got at and exhibited except through the action of an organ of sense, which in practice is necessarily a mental action. I said that if you could get at the response of the eye as modified by the bodily conditions, apart from the visual response, you might find that the mental side of the visual sensation had made no difference to what the bodily conditions gave. But the idea of doing this is surely chimerical. And so, practically, it seems to me, if you let in the bodily traces of past experience as modifying the sensa, you let in all the modification of mental response that has been included under apperception or any such term.

When mere external bodily position is in question (Mind, p. 391) I can see that this does not apply. You can tell, I suppose, how the look of the penny *must* alter as a man first looks at it direct and then steps away to one side. You can separate that bodily effect deductively, so to speak. But the other cases on page 391—must you not take in the mental response to get the result of the bodily conditions?

I have no axe to grind—no subjective idealism to maintain—in this argument. If my thought did create the landscape before my window—a notion to which I can only with the utmost difficulty attach any meaning whatever—still the landscape would be there, and we should have to acknowledge its physical determinations and connexions.

But the point in question did puzzle me, and I should be glad to see it explained.

B. Bosanquet.

I am not certain whether I fully understand the point raised by Dr. Bosanquet in his Note on my paper on *The External World*. On referring to the passage (*Logic*, ii., p. 307), which he quotes, I see that he is there arguing against people who hold that, although we perceive external things through the medium of eyes, ears, etc., yet this medium makes no difference to the object perceived. I understand this to be Prof. Alexander's view, but I find it quite as incredible as Dr. Bosanquet himself does, and for much the same reasons.

I take it that Dr. Bosanquet is not raising this point in his Note. I

understand him to mean one or both of the following closely connected things: (i) If bodily traces be part-conditions of our sensa they are no less part-conditions of our sense awareness. Now, if x determines both y and z and always determines both together, you may be able to say that z *does* depend on x, but you have no right to say that z *does not* depend on y. y is an invariable accompaniment of z on the hypothesis that y and z are both invariable accompaniments of x. (*Cf.* Mr. Russell's argument that the parallelist who denies interaction commits an inconsistency.) (ii) After all, the traces are hypothetical; what you can actually observe is the sensa and their qualities and the act of sensing. Hence it is closer to the facts to say that the sensum depends in part on the mental act than to say that it depends in part on the hypothetical bodily trace.

If this be Dr. Bosanquet's contention, I must plead guilty; and I cannot at present offer any satisfactory answer. I purposely omitted the question of the physiological conditions of sensation so far as I could, and no complete answer to Dr. Bosanquet's point could be given till this question has been properly threshed out. At present I find it most puzzling; and I feel that no philosopher, Realist or Idealist, has tackled it satisfactorily. Perhaps I may end by pointing out what seem to me the two chief difficulties: (i) If we treat our bodies as a kind of medium, they are a medium that goes everywhere with us, and therefore we cannot allow for their effects. Thus the supposed sensa in places where there are no living bodies (on such a theory as Russell's, *e.g.*) are as purely hypothetical as the old physical object conceived as a cause of sensations. (ii) Our bodies seem partly to condition the sensa themselves, and partly to condition what goes on in our minds. Can we draw a distinct line anywhere between these two sets of effects? How far does what happens in my body simply determine that I shall sense one rather than another of several coexisting sensa? And how far does it actually determine the properties of sensa themselves? I imagine that these are the kind of questions that Dr. Bosanquet has in mind. If so, I fully admit their importance, and can only say that I wish I knew how to answer them.

C. D. Broad.

DEATH OF M. ÉMILE BOUTROUX.

By the death on 21st November of M. Émile Boutroux at the age of seventy-six the world is deprived of a philosopher of international reputation and of a personality beloved and respected by all who knew him. Émile Boutroux was born at Montrouge (Seine) in 1848, and entered the École Normale Supérieure in 1865. In 1869 he went to Heidelberg, where he worked under Zeller, the first part of whose *History of Greek Philosophy* he translated later into French. Boutroux took his degree at the Sorbonne in 1874, presenting as his thesis a work entitled *De la Contingence des Lois de la Nature*. This work was first published in 1879, when, however, it attracted but little attention. But on its republication in 1895 it was recognised as containing that which had provided the point of departure for the speculation of Bergson and Le Roy, who had been Boutroux's pupils, and it has since gone through a large number of editions, besides being translated into the other principal languages. The volume designated *De l'idée de loi naturelle dans la science et dans la philosophie*, published in 1895, was a continuation of the same theme. Boutroux was the author of many other works dealing especially with the history of philosophy. In 1904 and 1905 he was Gifford Lecturer in

Glasgow, where he lectured in French on *La Nature et l'Esprit*, his first course being on "Nature" and his second on "Spirit". These lectures have never been published; but a portion of the material of them is evidently embodied in the book on *Science et Religion dans la philosophie contemporaine* which appeared in French in 1908, and in English in 1909. As Professor in the University of Paris, a position to which he was appointed in 1888 and which he resigned a few years ago, he exerted considerable influence upon successive generations of students; and as Director (since 1902) of the Fondation Thiers he came into close contact with a large number of younger men who were engaged in original research of a philosophical kind. The death in 1919 of his wife, a sister of Henri Poincaré, was a severe blow to him, but he retained to the end his wonderful vivacity and charm of manner, as also his deep interest in philosophical problems and social affairs. As late as the December of 1914, he visited England to deliver the Hertz lecture at the British Academy on "Certitude and Truth". This lecture was reprinted in 1916 with a number of other essays in a volume entitled *Philosophy and War*—a volume in which there is no bitterness, but in which the hope is repeatedly expressed that the Germany which was respected and admired by the whole world, the Germany of Leibniz and Goethe, may yet some day be reborn.

ERRATUM.

The Editor regrets that, through a mistake for which he alone is to blame, the following corrections need to be made in the last number of MIND and in the Table of Contents of Vol. XXX. :—

P. 498, l. 16 from bottom, for "Rivista di Filosofia Neo-Scolastica" read "Rivista di Filosofia".

P. 499, l. 3, before "Anno xiii." insert "Rivista di Filosofia Neo-Scolastica".

Contents, p. viii, after l. 22 insert—

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and for l. 24 substitute

Rivista di Filosofia Neo-Scolastica (xiii. 2; March-April, 1921) 500

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PSYCHOLOGY AND PHILOSOPHY

I.—THE PSYCHOLOGICAL ACCOMPANIMENTS OF INSTINCTIVE ACTION.

BY G. C. FIELD.

IN a previous article on this subject I attempted to make some suggestions about the proper method of approach to the problems of Instinct and instinctive action. And in the course of that article I referred to the views of those who hold that every kind of activity which we can call instinctive is necessarily accompanied by some kind or another of conscious experience, and that one way, perhaps for the psychologist the only way, of defining instinctive behaviour is to state the particular form of conscious experience by which it is accompanied. I propose now to attempt an examination of this point of view, and to ask whether every kind of instinctive behaviour is necessarily accompanied by some one kind of conscious experience, and if so, by what kind.

At the outset we must distinguish between two different questions. It is one thing to ask whether all instinctive behaviour, in particular, instinctive bodily action, is necessarily accompanied by one kind of conscious mental process, and quite another to ask whether certain kinds of conscious mental process should be properly described as instinctive in the same sense as certain instinctive bodily actions, even though the two forms of activity, the conscious mental processes and the bodily actions, are not always or necessarily found together. Our opinion on the latter point will largely depend on how much we include in our definition of Instinct and instinctive. If, for instance, anything that proceeds

from our innate psycho-physical structure is to be called instinctive, we shall probably not have much difficulty in applying the term at any rate to many of our conscious mental processes. If we mean more than that by the use of the term 'instinctive,' it will be a matter for investigation in each particular case whether the conscious mental process in question resembles the instinctive action to such an extent that we are warranted in applying the same term 'instinctive' to both of them. Some of the precautions suggested in my last article might possibly be found to bear on this investigation. But in any case, that is not the question which is being discussed in the present paper, which deals only with the former question. What, if any, are the conscious mental processes which always and necessarily accompany instinctive behaviour?

It seems to me that any discussion of Instinct must start from an examination of instinctive bodily action, because it is to this kind of behaviour that the term 'instinctive' is universally and unquestioningly recognised to apply. And no definition of the term could possibly be accepted unless it could be applied to the bodily actions which are admitted by everyone to be properly called instinctive. But before we ask what are the conscious accompaniments of this kind of action, there is one other preliminary consideration that we must bear in mind. We, like many at any rate of the other animals, are conscious beings. And therefore any kind of action, instinctive or otherwise, taken while we are conscious must have some kind of conscious accompaniment. But that would not warrant us in putting the conscious accompaniment that we found in any particular case of instinctive action into the definition of "instinctive," unless we had reason to believe that there was some necessary connexion between the action and the conscious accompaniment, so that we could not have one without the other. It is possible that, in ourselves for instance, instinctive action might be accompanied by some form of consciousness without being necessarily connected with, still less conditioned or affected by this consciousness. In such a case it would be clearly wrong to give the conscious accompaniment in our definition of instinctive action.

One more principle of method may be suggested. It seems likely that a good deal of the difficulties and differences of opinion upon the subject arise because investigators have started the consideration of it from a complicated particular instance or a border-line case, where instinct was clearly mixed up with a good deal else or where it was uncertain

whether the behaviour in question should properly be called instinctive or not. As a general rule it seems preferable, if we are to start with an investigation of a particular instance at all, to start with an instance which unquestionably belongs to the class of things which we are discussing, and where there is as little as possible of any other element. Then in the light of what we have learned from that we may consider the border-line cases. Thus in the case of Instinct it seems to me advisable to start, not from the behaviour of man and the difficult question exactly how much of this behaviour we can call instinctive and how much is due to other factors, nor even from moorhens diving and a discussion of the exact point of time at which their behaviour becomes modified by experience, but rather from certain actions of insects where we seem to get as close as possible to purely instinctive action.

Take any typical instances of insect behaviour. We find a series of actions, often very complicated, performed with extreme precision, and the whole admirably adapted to fulfil a certain purpose, the preservation of the insect itself or the preservation of its offspring. The Ammophila wasp seizes a caterpillar, stings it in the exact places where the sting will paralyse it without killing it, places it at the end of the burrow it has dug, lays an egg on it, and then seals up the end of the burrow.[1] Thus it secures that the larva will be hatched out of the egg in safety, and will have the supply of fresh meat which is needful for it to grow to maturity. Here is an action which, if performed by a human being, could only be explained by a great amount of acquired knowledge and skill, a clear foresight of the end to be attained, and an understanding of the exact means necessary to attain it. But we know that the insect cannot have learnt or acquired this knowledge, and cannot have any foresight of the result which it never sees or has seen. We may say further that it shows no interest in the result. And it is clear, also, if we consider experiments like those of Fabre and Captain R. W. G. Hingston, described in his fascinating book, *A Naturalist in Himalaya*, that there is no understanding of the situation and of what is happening, and no capacity for analysing and distinguishing the elements of the situation or for modifying the action to suit changes artificially produced.

Thus the Ammophila, if her burrow is broken open while she is collecting material to seal it up, and the caterpillar and

[1] I am aware that the experiments of the Peckhams threw some doubt on the alleged infallible skill of the operation. But the exact degree of accuracy displayed by the wasp is immaterial to the present argument.

egg extracted and laid outside the door, will make no effort to repair the burrow nor to replace the caterpillar and the egg which are lying in full view, but will calmly proceed to seal up the burrow as if nothing had happened. The Mason Bee builds cells of mortar and fills them with honey. If the cells are broken down before they are completed she builds them up again. But once they are completed she must go on to put the honey in, and if they are broken down after this, she makes no effort to repair them, but goes on putting the honey in, cheerfully oblivious of the fact that it is all running out again before her eyes. The spider builds her wonderful web in a certain order; and if the work she has already done is cut or broken, she does not turn back to repair it, though she has all the resources necessary for that purpose, but goes on in the fixed order, irrespective of the fact that the web is getting into a worse and worse tangle all the time, so that it would be almost useless for her purposes.

It is clear from these and many other instances, both from the character of the action and from the conditions under which it takes place, that these actions of insects are certainly not caused or accompanied by anything remotely like the state of mind from which a similar action would proceed in the case of a human being. But from what state of mind do they proceed? What conscious experience necessarily accompanies instinctive action? Let us consider the possibilities.

(1) There may be the consciousness of movement, the feeling in the muscles or the rest of the body when any part of the body moves or is moved. This consciousness must be thought of rather as the result of the movement than as its cause: it does not, by itself, affect or modify the movement in any way. To describe it in terms of our own experience, we should say that we feel the body moving without being able to control or check the movement; as when we blink our eyes in response to a sudden and unexpected feint of a blow. (2) There may be foresight and desire not of the ultimate result but of each particular movement. We can find this, too, in our own experience. We may want to get up and stretch ourselves; we may, if we are young and active enough, want to jump or run, not with any thought of any results that may be produced, but simply, as we say, for the mere pleasure of jumping and running. This may be desire in the full sense, involving a previous idea of the movement and a desire to realise that idea. Perhaps, therefore, the Mason Bee desires to go through in this order each of the particular actions involved in building her cells and filling

them with honey, though she may have no desire at all that the cells should be built and filled with honey. (3) Mr. Shand says that the invariable conscious accompaniment of instinctive action is 'a feeling of impulse.' I confess to finding this phrase ambiguous. It may be applied to either of the two previous experiences. But I cannot find in my own experience a third thing, different in kind from either of these two, to which the name could be properly applied. (4) It might be, as Dr. McDougall suggests, that instinctive action is always accompanied by an emotion, each kind of action being bound up with a particular emotion. (5) Finally, there is Dr. James Drever's suggestion that instinctive action is invariably accompanied by a feeling of interest. But this phrase by itself is obscure, and may mean several different things. It might, for instance, refer to an interest in the external stimulus, the situation or that factor in the situation which is the occasion of the instinctive action. Thus it might be argued that, if the sight of a caterpillar stimulates the wasp to seize it and sting it in a particular way, the wasp must have had a feeling of interest in the caterpillar to make her notice it in all its surroundings. This would be a preliminary feeling of interest, necessary to set the action going. But that is quite a different thing from an interest in either (*a*) an idea of the movements, which is in consciousness before the movements take place, (*b*) the results, immediate or remote, produced by the movement, or (*c*) the actual movements themselves, while they are going on. And there is a further distinction to be borne in mind. If we say that there is a feeling of interest in the movements themselves, that is by no means the same thing as saying that the feeling of interest causes or determines the movements. We can see the difference in our own experience of reflex action. If a doctor tests our reflexes, we may be very keenly interested in the movements that we make, but it is obvious that we cannot say in any sense that our interest determines or causes the knee-jerks, which would occur just the same whether we were interested or not. So that a 'feeling of interest' may mean several different things, any one of which may be present without the others.

Perhaps as a representative instance of the views which assign the maximum amount of conscious accompaniment to instinctive action we may take the account given by Prof. Stout in the last edition of his *Manual of Psychology*. Any statement from such a source comes to us with particular weight and authority, and we are not likely to find an abler statement of the views in question anywhere else. It may,

therefore, be worth while to give a somewhat detailed examination of the account there put forward. It is to be found in Book III., Chapter I. of the third edition of the *Manual*, and more especially in various passages on pages 343-357.

Prof. Stout is concerned to distinguish instinctive action sharply and definitely from reflex action, with which it is so often identified. 'Reflex action,' he writes (p. 343), 'is of a nature fundamentally different from instinctive conduct. The difference is that instinctive conduct does and reflex action does not presuppose the co-operation of intelligent consciousness, including under this head interest, attention, variation of behaviour according as its results are satisfactory or unsatisfactory, and the power of learning by experience.' This is clearly not a mere arbitrary statement of the kind of behaviour to which he proposes to apply the term 'instinctive,' for he asserts the presence of these elements in action to which the term 'instinctive' would be applied by universal agreement, including instances of the behaviour of insects such as those described above.

The first difficulty that I find in this account lies in the distinction on which it is based between instinctive and reflex action. A good deal of the argument seems to me to be vitiated by being based on a comparison between an experience of reflex action in ourselves and instinctive action as shown, say, in insects. Because reflex action in ourselves is comparatively simple and limited, Prof. Stout seems to argue that the behaviour of insects, which does not display this simplicity and these limitations, must therefore be accompanied by conscious and intelligent processes which are not present in the case of reflex action. But that is surely to beg the question. For the point at issue is just this, whether it is not possible for reflex action, as we know it, to be developed in other species to a very much higher pitch of complication and elaboration.

Further, a good many of Prof. Stout's arguments about instinctive action would, it seems to me, apply with equal force to reflex action. In our own case reflex actions, of course, may be accompanied by a considerable amount of intelligent consciousness. And, owing to the presence of this intelligent consciousness in us, we may sometimes to some degree check, control or modify the reflex action. Thus we may suppress or partially suppress a sneeze or the blinking of our eyes at the feint of a blow. We say that the resultant action in such a case is not entirely reflex, but that part of it is intelligently controlled, thus still retaining the sharp distinction between what is due to the reflex and what

is due to intelligence. But why should we not speak in the same way of instinctive action? The question is not whether animals which act instinctively may or may not sometimes modify their behaviour under the influence of intelligence. It is rather whether instinctive action is necessarily bound up with and determined by intelligence, whether it is from the beginning, as Prof. Stout says (p. 357), 'essentially conditioned by intelligent consciousness'. Prof. Stout's argument that subsequent modifications of behaviour by intelligence prove that the behaviour must have been determined by conscious intelligence from the beginning, would surely, then, apply with equal force to reflex action. For that also, as in the case of the suppressed sneeze, may be modified by intelligence. And, so far as it is based on such considerations, the distinction between instinctive and reflex action seems to fall to the ground. And there seems so far no reason why we should not say of instinctive action, as we do of reflex action, that it is *qua* instinctive essentially different from and undetermined by intelligence, though in any particular case the behaviour, which would otherwise be purely instinctive, might be modified by intelligence.

But we must examine further the case for the influence of intelligence in behaviour which is usually regarded as instinctive. I may be unduly sceptical, but I confess that I am still not perfectly convinced by any of the evidence I have yet seen for the actual occurrence of intelligent action in insect behaviour. The great difficulty, I suppose, in assuming its presence is that, if it is there, its action seems extraordinarily fitful and erratic. Some of the very few alleged cases, if due to intelligence at all, seem to argue a relatively high development of that faculty. And yet in other cases which do not seem to call for any greater exercise of it, the same insect will fail so conspicuously to show the slightest signs of its presence. Of course, the same thing may strike us at first sight in the behaviour of certain human beings. But in such cases a very little inspection will probably show us some ground or principle of these limitations in the application of intelligence. But it is difficult to find any such intelligible principle in these instances of insect behaviour.

But apart from that the instances themselves seem to lack decisiveness. A good many of those which are commonly quoted do not seem to necessitate an ascription of them to intelligence at all. When a physical hindrance to the performance of the actual movements calls forth a response which did not show itself when the movement was unhindered, it seems just as natural to say that a difference in

the stimulus produced a different reaction as to suppose an intelligent appreciation of the situation. There is no difficulty that I can see in supposing some such kind of alternative mechanism in the animal's structure which could vary the action in response to a perceptible difference in the surrounding circumstances. Such a case would be that of Dr. Peckham's wasps who tried to drag into the burrow spiders which were too large and stuck in the entrance or half-way down, whereupon they brought the spider out and enlarged the burrow before taking it in again. The single instance which he reported where a wasp on one occasion enlarged the burrow before finding that the spider stuck in it is on a different footing. There, certainly, the most natural explanation of the action would be an intelligent appreciation of the situation. But such a case is almost unique. And there is this to be noted about it and the one or two other cases which stand on the same footing. So far as I know, they are all isolated cases observed under natural conditions. I do not think that any such cases were found under experimentally controlled conditions, which seem to have given uniformly negative results. That, at any rate, is Fabre's conclusion.

In spite of these considerations, I would not demand of others that they share my scepticism. It may possibly be a personal reaction against an earlier tendency to anthropomorphise unduly the behaviour of animals. And it is certainly not in any way essential to my argument to maintain that insects never show any intelligent modification of behaviour. But I do maintain that a great deal, if not most of their behaviour shows no signs of intelligence at all, and is, indeed, such that it is very difficult to suppose its presence or its influence.

We have not yet come face to face with the question, What do we mean by this intelligent consciousness about which we are arguing? How much do we include in it? Prof. Stout answers (p. 354) that the minimum that we must include in it is, '(1) attention selective and prospective, making possible the guidance of motor activity by complex and variable groups of sensory data; (2) appreciation of relative success and failure, making possible persistency with varied effort.' Let us consider these points.

(1) Is all attention necessarily intelligent? It seems to me difficult to apply the term to cases, for instance, of involuntary attention aroused by the intensity of the stimulus, such as a sudden bright light or loud explosion, or to the attention that we give to the stimulus of a reflex action, such as the blow aimed at our face which makes us flinch and

blink our eyes. Strictly speaking, I should have thought that intelligence could only be asserted of attention which is due to some previous process of thought, and that it involved some kind of knowledge of what it was that we were looking for. But this is clearly not the case with the wasp who attends to the caterpillar the first time that she catches one as intensely as the last. I do not see any evidence that there is anything resembling our voluntary and conscious selective attention. The wasp does not know what she is looking for, and we do not even know that she is conscious of looking for anything. She may just as well feel simply impelled to fly about until a caterpillar crosses her field of vision, when the impulse to further action follows at once.

And what is her awareness of the caterpillar like? What does it mean to her? It seems to me that the caterpillar means to the wasp simply a certain action with regard to it and nothing more. It certainly cannot mean food for her offspring. And it seems equally evident that it does not even mean a well-stocked burrow with an egg on the top, or she would not regard both caterpillar and egg with such complete indifference as she did in Captain Hingston's experiment, when the burrow was broken open and the caterpillar and egg laid in full view outside the entrance. And, as this and similar experiments show, the caterpillar only means this action to her at a certain stage in the whole instinctive process. At other stages it seems to mean nothing at all to her. As Fabre repeatedly points out, there seems no capacity in insects for going back over any stage in a process once completed and repairing damage or doing over again what has once been done. So that it seems natural to say that the action is not determined by the consciousness of the object but rather that it determines the consciousness, if indeed there is anything that we could call consciousness at all. For if the object simply means a certain action to the wasp and nothing more, I should even question whether we can properly speak of a conscious awareness of it at all. I would rather say that the attention is part of the action, and as such conditioned by the innate structure of the animal just as the rest of the action is, not that the attention causes or conditions the action.

(2) But it is the second of Prof. Stout's conditions which is the real crux of the question, the appreciation of relative success and failure, and the consequent power of varying effort. A good deal here obviously depends on the degree of qualification implied by the term 'relative'. It might so cut down the meaning of success and failure as to leave nothing

but the consciousness of whether the action was proceeding smoothly unhindered by immediate physical obstruction. It is natural to believe that there is this amount of consciousness, though it would obviously be impossible either to prove or disprove it. But that by itself would hardly amount to intelligence. And Prof. Stout clearly means more than that. For he speaks (p. 351) of the animals being 'continuously interested in the development of what is for them one and the same situation or course of events,' and of their 'trying again when a certain perceptible result is not attained'.

If this were indisputably shown to be present, it might or might not be a proof of intelligence. But it seems to me that these are just the features which the behaviour of insects under experimental conditions does not show. I should have thought that a 'continuous interest in the development of the situation' involved at the very least a realisation of the connexion between the different stages in the process, and an interest in the preservation of the perceptible results already attained. But it is difficult to claim this either for Captain Hingston's wasp, or for Fabre's Mason Bees, who went on filling their cells with honey after they had been visibly broken open. It might be said that the Mason Bees showed an interest in the process of building their cell until that task was completed, and then transferred this interest to the filling of them with honey. But what sort of 'interest' can this be which is thus divided up into absolutely water-tight compartments, so that it can suddenly stop short at one point in a continuous process and, as it were, start afresh? For the process is obviously continuous and the latter stages are closely connected with the former. I find it difficult to believe in this continuous interest, and impossible to believe that there is any intelligent appreciation of the process as a whole. As for the 'perceptible result,' surely a spider's web would afford an illustration and a test case of this, if anything did. And yet in Captain Hingston's experiment, already referred to, the perceptible result was conspicuously not attained, and yet the spider seemed quite undisturbed by this. She only altered her behaviour when the cutting of the web went so far that her freedom of movement in the path marked out by her routine was checked. And this seems the characteristic of nearly all the reported cases of modification of behaviour: it only occurs when the actual physical movement is interfered with. And this makes it difficult to believe that in ordinary insect behaviour there is any interest or appreciation of a perceptible result beyond the actual action itself.

If the foregoing argument is correct, it follows that a great

deal of insect behaviour, at any rate, is not conditioned or caused by intelligent consciousness at all. It may, no doubt, give rise to consciousness, the consciousness of the movement itself, such as we experience ourselves in the case of reflex action. That can hardly be proved or disproved, because consciousness of this kind does not, of course, directly affect the movement itself, and therefore cannot be inferred from any characteristic of the movement. With regard to the consciousness of the stimulus object, the caterpillar which the wasp seizes, for instance, there may be consciousness of that, of a sort. But it does not rise to anything that we can call intelligent consciousness. And it does not seem absolutely necessary to suppose the presence of consciousness at all. The facts are equally consistent with the view that the physical action of the visible object on the sense-organ of the animal translates itself at once into the appropriate action, without the accompaniment of the psychological experience which we call awareness of the object in our own case. The one kind of consciousness which it does seem most natural to ascribe to the insect is a vague feeling of uneasiness and dissatisfaction when the action, once started, is checked or hindered by some physical obstruction. And it might be possible to work out a view on this basis, developing a hint of Bergson's, according to which consciousness would only arise when instinctive action failed to complete itself. But such a view would, of course, be pure hypothesis.

In the light of all these considerations, what are we to say about Dr. McDougall's view that the essential conscious accompaniment of instinctive action is emotion, each kind of instinctive action being correlated with a particular emotion? As thus simply stated, this view seems to me to have been too thoroughly riddled with criticism by writers like Mr. Shand, Dr. Rivers and others, to be any longer accepted. Obviously, it would be very difficult to assign a special emotion to each of the very complex kinds of action performed by insects. But even if we consider the higher animals the view is hard to maintain. It has often been pointed out that we find different emotions accompanying the same action and different actions accompanying the same emotion. But the criticisms of the view go deeper than this. For they raise the question whether actions and emotions necessarily accompany one another at all, and whether in many cases at any rate, they do not appear as alternative and even mutually exclusive reactions to a particular situation. In our own experience, as Mr. Shand suggests, we find that the emotion of fear, for instance, is felt less intensely the more quickly we

are able to meet the dangerous situation by action, and may even not be felt at all at the time. It is when we think of the situation afterwards, or, one may add, when we are prevented by physical circumstances from acting, that we feel fear. And Dr. Rivers suggests that a strong emotion of fear would rather hinder the performance of the instinctive actions of escape, especially if they demanded a series of difficult and delicately adjusted movements.

I cannot help feeling that there is possibly in this view a certain confusion between instinctive actions of the kind we are discussing and the bodily expression of emotion which we really feel as part of the emotion. These bodily expressions of emotion may perhaps be properly described as themselves instinctive: they certainly share many of the characteristics which we ascribe to instinctive actions. But instinctive action in the strict sense is almost certainly independent of emotion and need not be accompanied by it at all. And when we are speaking of these bodily expressions of emotion it is entirely misleading to speak of the emotion and the instinct as being correlated or connected, or to use any expression which implies that there are two different things with a relation between them. In cases of emotional expression, if we speak of instinct at all, the emotion is the instinct. There are not three different things, the emotion, the instinct, and the action to which the instinct leads, but two only, the emotion and the action in which it expresses itself. In one of Dr. McDougall's instances—the emotion of fear and the instinct of flight—if flight follows immediately on fear as the expression of it and has that felt connexion with it that, for instance, the visceral sensations and the trembling of the body have, then the emotion of fear is the instinct of flight. But, as we have just seen, it seems probable in most cases that the instinctive action of flight is entirely independent of the emotion of fear.

The whole question of the emotions of animals is a difficult and interesting one. It is, of course, beyond question that many animals do feel emotion. But it is equally certain that in many situations where we should naturally ascribe emotion to them further investigation raises doubt. Is, for instance, the care that some insects display for their offspring accompanied by the tender emotion which we usually suppose to characterise the maternal relation? Prof. Washburn relates the story of a wasp feeding a wasp grub, who finally cut off one end of the grub and offered it to the other end to eat. As she truly says, it is difficult to suppose the presence of tender emotion towards the grub in the mind of the wasp.

And cases not so far removed from this may be found even among higher mammals. What evidence are we to accept for the presence of emotion in any particular case? I would suggest very tentatively some such test as this: If all the visible actions of the animal can be explained as being part of or having some bearing on a whole course of action leading up to a result, then there is no evidence of the presence of emotion. If, on the other hand, in cases where we might reasonably expect emotion to be felt, there are any actions which seem to play no part in such a definite course of action, these may be taken as possible expressions of emotion and therefore a sign of its presence. Such would be the movement of a dog's tail, indicating affection or pleasure, and the similar movements of a cat's tail, indicating anger or excitement. Of course, the strength of such evidence becomes much greater when the expression of a suspected emotion in an animal resembles in some degree the expression of a similar emotion in human beings.

A whole flood of light is thrown on all these questions by the experiments on animals, such as those of Schrader, Goltz and Sherrington, on which Prof. Lloyd Morgan, in *Instinct and Experience*, bases his theory of instinct as the work of the sub-cortical centres. In these experiments it was found that animals, from whom had been removed that part of the brain which is usually supposed to be the seat of consciousness and intelligence, were yet capable of movements which were far more developed and complicated than anything that we should normally call mere reflex action. The decerebrate pigeon, for instance, could fly and avoid obstacles in doing so, could eat, could peck, clean its feathers and so on. And yet, as far as we can tell, it was, in Prof. Lloyd Morgan's words, 'a mere unconscious automaton'. Unless we are going to throw overboard the whole of the physiology of the brain, the conclusion seems inevitable that instinctive action is independent of any kind of consciousness, in the sense that it can take place equally well without it, and is not caused or conditioned by it in any way. This is, of course, in flat contradiction of the views that we have been considering, and takes us, indeed, very much further than our criticisms of these views have so far enabled us to go. And yet it is difficult to see how it is possible to avoid this conclusion, which takes us straight back to the old view that instinctive action is simply more complicated reflex action.

Finally, we may perhaps gain some light on the question by a consideration of our own experience of habitual actions, say, the adjustments of balance that we make in riding a

bicycle, or various little bad habits, like biting the nails, etc. Here we have actions, sometimes fairly complicated, which take place just as well, or perhaps better, when our interest or attention is concentrated on something else altogether. There is certainly no feeling of interest either in the actions themselves or the stimulus which leads to them. They are at the very margin of consciousness, and probably in some cases sink below the level of consciousness altogether. Certainly they are not, at the moment of action, caused or controlled or conditioned by consciousness in any way.

This is not a proof that instinctive actions are necessarily of the same nature, unless we adopt the view, to me untenable, that instinctive actions are historically derived from habitual actions. But it does afford an illustration of the kind of thing that our argument so far seems to show instinctive actions to be. And at least, if we find these characteristics in habitual actions, it does afford to us a sufficient refutation of those who say that it is impossible that instinctive actions should show similar characteristics.

If we adopt this conclusion, we shall clearly have to modify some of our ordinary modes of speech about Instinct. As applied to our test case of instinctive bodily action, Instinct must be thought of as a general characteristic of certain forms of behaviour. We may describe this characteristic biologically by its origin, *i.e.*, by saying that it is inherited or innate, and by its results, and we can describe it physiologically in terms of the particular kind of bodily and nervous structure which conditions it. But if we are taking the strictly psychological point of view and asking what is its connexion with conscious experience, we can only describe it negatively by asserting its independence of any form of this. Nor must we speak of Instinct being modified by intelligence or experience or habit. Such a way of speaking implies that the behaviour is affected by one or other of these factors, and yet still remains instinctive. Whereas on our account just in so far as the behaviour is affected by these it loses its characteristic of being instinctive. Behaviour, of course, is modified by intelligence and experience. But it is a contradiction in terms to say that Instinct is. We must not, on the other hand, say that an animal is necessarily unconscious because it acts instinctively. We can only say that, as far as the animal is acting instinctively, its action is not affected by the presence of consciousness. If the animal is endowed with consciousness, it will be conscious of the instinctive action as we are conscious of our reflex movements. The consciousness, that is to say, will be of the action and follow from it.

There will also be some kind of immediate consciousness of the stimulus, but only as that which causes the action. There *may* be more consciousness than this, there may be, for instance, reflexion and intelligent interest. But if that ceases to be a mere onlooker and modifies the action, then the action so far ceases to be instinctive. And there *need* be no more consciousness than we have described. That is, assuming that the animal is endowed with consciousness. But the mere presence of instinctive actions does not by itself necessitate the belief in the presence of consciousness at all.

These are the characteristics of instinctive action. It is obvious that no other form of behaviour, no thought or feeling, for instance, can share in all these characteristics. A thought or feeling, being a form of consciousness, cannot be described as independent of consciousness. It might, however, be independent of other forms of consciousness, it might be due to an innate mental structure, it might be unaffected by previous experience or by foresight of any end. If we start, then, from instinctive action as the limiting case, we can see how far any of its characteristics are shared by other forms of behaviour, and then decide whether they approach near enough to it to have the term 'instinctive' applied to them as well.

II.—AN IDEALIST *IN EXTREMIS*.[1]

By F. C. S. Schiller.

To write the history of Neo-Realism would be a considerable service to philosophy. It would be interesting to trace it to its sources, to determine its points of departure, to study the influences that moulded its developments, the aims it envisaged, the conclusions it arrived at, and above all the persons that were the authors of its being and steered its course. A similar service might be performed for Neo-Idealism and many other tendencies in modern Philosophy. When this had been done, it might be possible to show that they all converged towards certain points on the philosophic horizon; or at least it might appear that they were all infected with the spirit and the vices of the age. But anyone who searched this book for anything of this sort, for the continuous narrative and objective treatment of such a history, would certainly be disappointed. He would have mistaken Dr. Bosanquet's purpose and method. His book is not a history of philosophy. It could not be. For philosophy has no history. All great philosophers have always been agreed. They have always meant one thing, and the same thing. It has been called O-M or O-N, as the case may be: but it is always O-N-E. Assuredly, philosophy *can* have no history. Nothing has, that really *is*, and is really *true*. And Dr. Bosanquet is much too wise to attempt the impossible.

What he attempts is something very different. He sets himself to show modern philosophers where they have gone wrong, and to rebuke them for backsliding. They have all, or nearly all, strayed from the straight path of orthodoxy that leads to salvation in the One, and fallen into heresy.[2] Not only the 'new' realists (Russell, Alexander, the American Six), but the 'critical' (especially Pratt), not only the 'new' idealists (Croce, Gentile, etc.), but even one so old and eminent as

[1] *The Meeting of Extremes in Contemporary Philosophy*. By Bernard Bosanquet, Fellow of the British Academy. Macmillan & Co., London, 1921. Pp. xxxi, 220.

[2] The only apparent exception is Mr. Bradley; and even *his* reputation is preserved only by passing over *sub silentio* his coquettings with scepticism and pragmatism, to which I devoted an article in Mind, No. 95.

Viscount Haldane, come in for more or less direct censure. The most pernicious of their heresies, in which the extremes of Neo-Realism and Neo-Idealism meet, and consort with the 'untouchable' pariahs of pragmatism, are 'moralism,' 'progressism' and 'temporalism,' *i.e.*, the belief that time is real, and that reality can change. These are the fundamental errors which the spirit of the age imposes (p. 100); but they naturally annoy Dr. Bosanquet. Still he contrives to write about them with his usual urbanity, more in sorrow than in anger. He begins to see red only when Absolutism is classified as a form of 'intellectualism' (*cf.* pp. 100, 114 f., 198), which he resents as a "dyslogistic epithet" (though, curiously enough, he uses it himself as such on p. 61 !), or when it is credited with a 'block universe'—for all the world as though the inventors of this harmless phrase had called the believers in it 'blockheads'! With these exceptions he keeps his temper admirably, and naturally excites sympathy as an *Athanasius contra mundum*. Here, one thinks, is a heroic Hegelian assuming a truly tragic posture in the last ditch, distressfully beholding the cosmic process (which nevertheless is wholly rational and the revelation of all Rationality) not only continuing, otiosely and sans meaning, after its secret has been completely eviscerated, but actually repudiating the absolute truth revealed to Hegel.

Dr. Bosanquet, however, does not really need our sympathy. He should be imagined rather as seated aloft, like Olympian Zeus, in a "truly speculative attitude, free, concrete, penetrating and widely appreciative" (p. viii), contemplating the little systems and contentions of fallible men, and "the really startling difference and agreement between the Italian neo-idealists . . . and the English and American neo-realists" (*ibid.*), and watching "the neo-realist, the man of comparative science, and the empiricist everywhere at work to-day . . . building the *foundations*[1] of that speculative philosophy whose *superstructure already exists*"[1] (p. 75). After that it is clear, on his own showing, that Dr. Bosanquet's *place* in Reality is Nephelococcygia, and his *time*, the Divine Night of the Absolute that follows upon the *Götterdämmerung*, in which (as the Master hath said) all cows are black and all donkeys loom alike. There is need, therefore, for a search-light, to flash upon whatever looks 'suggestive' or 'instructive' in the light of the Eternal Truth. And Dr. Bosanquet makes great play with it.

At first, indeed, his procedure seems a little arbitrary. He

[1] Italics mine.

plunges *in medias res*, and picks up a doctrine here and a dictum there from a philosopher who can bear the label, either of 'neo-realist' or of 'neo-idealist,' and compares it with another, similarly selected, discoursing about them in the pleasantly allusive, but somewhat involved, style which is such a valuable adjunct to a philosophic, as to a prophetic, reputation. But as he warms to his work his argument grows more continuous and incisive, and in the end one feels that not only has he made out as good a case as anyone for the "faith" (pp. 200, 216) that *all is one*, but that he has advanced a number of contentions which are real contributions to philosophic debate, and demand examination.

As such I would enumerate (1) the exposition of the ontological argument in chapters ii.-iv., (2) the discussion of '7 + 5 = 12' in chapter v., (3) the criticism of progress, (4) the necessity of the all-inclusive system or whole, and (5) the ultimate inconceivability of change and time.

(1) Dr. Bosanquet is fully aware that the 'ontological' argument is essential to his contentions. He has to prove it 'sound' in principle (p. 48). He has to remove its restriction to the existence of God (p. 83). He has to show that "every essence has in some degree a *claim*[1] and nisus to existence" (p. 75), and that "every *alleged*[1] essence, every distinct thought, carries with it, in virtue of its special nature, a certain *claim*[1] to find itself in reality" (p. 98). He has, lastly, to show that it is "possible to make a *valid*[1] inference from essence to existence" (p. 76).

To prove these points, he undertakes a very thorough and instructive examination of Spinoza's embarrassments (not to say, contradictions) on this subject. He argues further that "essence involves existence where affirmation is free from confusion" (p. 82),[2] and that "you cannot be in error about a reality which leaves no opening for misapprehension; and you must always be thinking about some reality" (p. 84). He retracts indeed the confident assertion of his *Logic* that "it is obvious that in every concept the intension dictates the extension" (p. 88), but still maintains that "when we know *what* a thing is, we know in principle whether and where it exists, and how many of it there are. If we say we know what a sovereign is, and not how many there are in the world, then we do not really know what a sovereign is" (p. 89). And so he concludes that "even in finite things the

[1] Italics mine.

[2] Is this a resuscitation of the Cartesian 'clearness and distinctness' as the criterion of truth?

thought *demands or guarantees*[1] the fact," and that "an idea or nature or essence is in principle self-contradictory until it has given rise to appropriate existence" (p. 98).

Now what is to be said about all this? In the first place one is led to wonder why an idealist philosopher who has discovered what a sovereign (or a Rembrandt) is, and is thereby enabled to deduce infallibly "how many of it there are," does not at once become the greatest authority in finance (or art). But perhaps he has discovered also that he *cannot* know *all* about a sovereign (or a Rembrandt), *e.g.* its value, without previously ascertaining its 'extension,' and so its rarity. However, it is pretty clear that Dr. Bosanquet is *right* in recognising the wide application of the mode of reasoning used in the 'ontological proof'. It is not merely in proving the existence of God that we endeavour to pass from the presence of an idea in our mind to the reality of a corresponding object. We proceed thus whenever we try to *apply* our ideas to reality, and to verify them in experience. In other words we do so most of the time, nay all the time, except when we are merely tracing the interrelations of *entia rationis*, as in pure mathematics. *But* we do not ordinarily accept this *claim* of our ideas at face-value, without discount or further examination. The fact that our ideas claim to apply to reality is *not* a sufficient proof that they do so. We do not ignore the possibility of error. We admit that we are fallible. So we *distinguish* between a 'demand' and a 'guarantee'. We look to *experience* for our guarantee, for a confirmation of their claim. We realise also that their confirmation may be *partial*, and will almost certainly be *gradual*. And even though our ideas may be wrong, more or less completely, it is consoling to think they are capable of correction and improvement.

Now it is precisely this whole process of *testing* the claim of an idea to reality that the 'ontological' argument—and Dr. Bosanquet—appear to rule out or overlook. The whole paradox, the crux, and, I venture to think, the fallacy, lie here. The tendency to pass from existence in idea to existence in reality remains a mere presumption, instinct, or craving, unless, and until, the claim is verified. And unless it can be verified, it cannot be called a 'valid inference,' or a 'proof'. *Prima facie* therefore the 'ontological' *claim* that a 'God' exists or a 'universe' exists, because we have somehow become possessed of these ideas, needs verification and confirmation by experience, just as much as *any other* claim to

[1] Italics mine.

reality. If any philosopher wishes to dispute this, he should transfer the discussion to the question whether some (or all?) *claims* to reality are *self-proving*, and should be prepared to meet the retort that they are only *impudent*.

This is the real question about the 'ontological' argument, and to it the truism that wherever the conditions of going wrong are absent, we cannot go wrong, is merely irrelevant. To render this truism significant and applicable to human knowledge, it would have to be shown that the conditions are *ever* such that error *is*, in point of fact, excluded. And Dr. Bosanquet, at any rate, could never do this, so long as he holds that human thought, being finite, must necessarily be in error.

(2) In chapter v. (p. 103) Dr. Bosanquet tells us that "the whole decision upon the ultimate reality of time and progress, and the just criticism of moral perfectibility as a world-principle in opposition to religious self-transcendence" rests "in principle" upon the simple addition sum 7 + 5 = 12. "We start in elementary logic. If 12 were not the same as 7 + 5, the *judgment*[1] would not be true. If it were not different, the judgment would not be a judgment. There is no province of knowledge over which the law of identity, construed as the principle of tautology, bears sway. There is no region of reality which can be interpreted by its aid." Hence, so far from being the simple sum it seems, it is a stupendous example of an "*eternal novelty*," "the expression of something which, parting from itself, remains within itself, and which, being always old, is yet perennially new. To consider the expression impartially is to recognise in the simplest thought this inherent connexion. Here we have the open secret, from which a hasty and one-sided philosophy runs away. . . . So when we find a doctrine which judges of ultimate reality on the basis that if novelty, progress, difference are to be achieved, the identity of the whole as a whole and in its ultimate character must be abandoned, we know where we are. We are simply in the presence of a blunder in elementary logic" (p. 104). All the progressists commit it, and it leads them erroneously to suppose that where you have novelty you cannot have sameness, and that as the real brings novelties, it must change. Whereas "when once for all the principle of the judgment 7 + 5 = 12 is mastered, we grasp the paradox at once of reality and of inference" (p. 112).

A pretty paradox this of the 'eternal novelty' of 7 + 5 – 12, and fit *pour épater les bourgeois!* Nevertheless the

[1] Italics mine.

'progressists' would be ill-advised, nay 'hasty and one-sided,' if they were routed by it. They should tarry to examine it, and a little judicious questioning would soon deprive the sum of 7 + 5 of all its terrors.

To begin with, they should, respectfully, point out to Dr. Bosanquet that 7 + 5 = 12 was hardly a good example of an 'eternal truth,' because it is not properly a truth at all. It is not properly a *judgment*, but only a *proposition* (which indeed is what Dr. Bosanquet himself calls it on p. 112). And even 'elementary logic' may be entitled to insist on observance of this distinction. For a proposition (or in Mr. Russell's parlance a 'propositional function'), like the whole tribe of mathematical 'truths,' is properly a form of words, with blanks for inserting 'variables' according to requirements. It is not properly either true or false. These are qualities reserved for *judgment*. 'Truth' is its glory, 'falsity' its besetting sin. But a *proposition* is merely a product of past judgments, and a form for judging future ones withal. Nor has it, strictly, any (actual) *meaning*. No one can say, merely from contemplating 7 + 5, what they will *amount to* in a concrete application of the formula. It is necessary to know *what* are the 7 and the 5 concerned. Experiments with drops of water and with fishes will give widely discrepant results. And even with fishes the results will differ according to the species. If, *e.g.*, the scene of the operation is a pond inhabited by 7 carp, and the 5 added are hungry pike, it is probable that the sum '12' will be a very temporary truth.

Clearly then, for '7 + 5 = 12' to acquire *actual meaning*, and to *become* (possibly) true, the proposition has to be *used*, *i.e.*, to be converted into a judgment and applied to some appropriate reality that admits of arithmetical treatment. It may then become true, *for the time being*. It often does, because many things *will* stand arithmetical treatment. And every *successful* application of arithmetic to reality will have a certain novelty of its own. But it is plain that *in this sense* arithmetical truth cannot have eternity. It is strictly *pro hac vice*.

It can, of course, be taken differently; for mathematical 'truth' is not as 'simple' as Dr. Bosanquet supposes and is really very complex. 7 + 5 = 12 may be meant as a sum in simple addition, in *pure* mathematics. In that case, it will be a deduction from the conventions of common arithmetic about the conception of number and the operation of adding. So long as these conventions are retained, it will be 'true,' *i.e.*, deducible from the system. But the truth of the system will depend, ultimately, on the continuance of its

applicability to reality, and if this should fail, its 'truths' will be affected. Euclidean geometry has recently undergone such a *deminutio capitis*. Hence, even in this sense, mathematical truth is not strictly 'eternal'.

To the 'law of identity' the same remarks apply in principle. In the abstract it too is just a verbal form, devoid of meaning. Which is why logicians have found it so hard to say what its meaning is. But when an identity, say *S is P*, is actually asserted, what we mean is that *though per se* S and P are different, yet *for our purpose*, and for the nonce, we *claim* that they may advantageously be *identified*.

A completer analysis of arithmetical truth therefore hardly seems to bear out the claim that 7 + 5 = 12 reveals the inmost Secret of the Universe, and confutes the belief in the importance and reality of time.

(3) Dr. Bosanquet's objection to progress may be dealt with briefly. While admitting that "the place of time, progress and change in the universe" is "the ultimate crux of speculation" (p. 125), he censures its "narrow humanism" (p. 124); but his weightiest objection is that an infinite progress "must necessarily be a failure *ad infinitum*" (p. 206), and involve both man and the universe in the fate of Tantalus (p. 57). But this overlooks two alternatives, (*a*) that progress may be real without being infinite, and that (as I have endeavoured to show) becoming may attain to being and time to eternity, (*b*) that an infinite progress is not necessarily bad. It may be worth while, if the *quality* of the process is good enough. And whether it is or not may be a matter of an immediate apprehension of value.

(4) The existence of the all-inclusive system or whole, of which Dr. Bosanquet is such an ardent advocate, rests, of course, on the validity of the ontological argument. And if further it were frankly admitted to be the expression of a craving or instinct, nothing more would need to be said about it. It would rank merely with "the unity which is grasped by faith" (p. 200), and the other manifestations of the will to believe. But it is clear that to Dr. Bosanquet it is very much more than this. It is for him an absolute fact and a necessity of thought that all systems must be included in one system, that all wholes are in the Whole, that 'all that is' is a 'universe': nor does he hesitate to speak repeatedly of the Whole as 'infinite' (pp. 114, 183, 188, 201, 209, etc.). Even the strictly individual place-time systems, which the new physics of Relativity no longer profess to unify, are calmly assumed to form a 'total' (p. 155). But when he sets himself to reason out these convictions, he is singularly un-

convincing. Thus we read (p. 177) that "the whole cannot change. The whole I take to mean the universe; all that *in any sense*[1] is. It cannot change because any change introduces something that *is*,[1] and this, *ex hypothesi*, falls within the Whole. The Whole, if it changes, *was*[1] not the whole, but something less. All that is includes all that can be; there can be nothing more than it."

Here it is clearly *assumed* that 'what is' forms an 'all,' and that any novelty which any change introduces must be 'something that is' (timelessly), and, therefore, *was* from all eternity. But these are the very assumptions that were questioned, and have to be made good. In arguing in his system, Dr. Bosanquet is plainly arguing in a circle; and it would seem that the only way of avoiding circularity, *viz.*, by conceiving the system as 'open,' and so far not absolutely systematic,[2] is not open to Dr. Bosanquet.

If we further take into account the fact that there is *no logical route* from the partial systems (sciences) to the all-inclusive system, because the selective method of the former is antithetical to the inclusive procedure of the latter,[3] the validity of the notion of 'universe' ceases to seem self-evident, and begins to look dubious.

And if, finally, we endeavour, with Dr. Bosanquet, to work out the meaning of the universe "in the suggestions of life and experience, and not in the language of abstract speculation" (p. 177), and ask how in the concrete, we can think "all that *in any sense* is" as a real unity worthy of the name, we shall speedily find that it possesses positive features which insuperably resist its inclusion in a universe. For it is soon seen that the common world of ordinary life is not a *datum* but a (pragmatic) construction, compiled by ignoring the claim to reality of an infinity of private worlds (of dream, imagination, fiction, illusion, etc.). Also that, as even this common world appears to be infinite in space and time, *nothing can be predicated universally of it, i.e.*, of *all* of it, that is not liable to be falsified by its failure to exhibit that predicate somewhere or at some time. This, of course, was just the reason why the ancients regarded the infinite as the frustration of knowledge, and an 'infinite whole' as a contradiction in terms.

If then there is to be truth about the universe, it *cannot* include any truth that is liable to be falsified by the infinity

[1] Italics mine.

[2] *Cf.* my study on *Arguing in a Circle* in the Aristotelian Society's *Proceedings*, 1921.

[3] *Ibid.*, pp. 223-228.

of space, time and change. Pretenders to reality infected with these cannot be truly real. They *must* be excluded. So must a great deal more that appears, and claims, often very insistently, to be. Not merely evil, but all finite being as such, and every sort and grade of reality, short of ultimate reality. *Only* ultimate reality can be real, if the 'universe' be real, and the truth about it absolute. We are thus confronted with the paradox that the Whole, which was designed to be all-inclusive, excludes pretty nearly everything. But it has to, if it is not to become merely a dumping ground and rubbish heap for fraudulent pretenders to reality to disport themselves over.

Even this does not exhaust the exclusiveness of the 'all-inclusive' whole. In the end it must exclude even its own votaries. Not merely because they are 'finites' in a finite world that cannot be truly real, but, quite definitely, because they claim to apprehend a reality whose majesty cannot be apprehended by them. They thus commit *lèse majesté*. For it is part of the truth about the Whole that only the Whole can truly know The Truth. Partial truth *must* be partial error, and how deep that error goes 'finite' thought cannot fathom. It can know only that the Whole can never be grasped as it is, *viz.*, as a whole. An ungracious and ungrateful return for such devotion! one is tempted to exclaim, until one reflects that *ex hyp.*, the Whole is supra-moral and 'beyond good and evil'.

Moreover, in virtue of these same difficulties, the finite intelligence, when repudiated by the Absolute, is bound to retaliate in kind. It is bound to view its relation to the Absolute also from its own standpoint. And then, instead of submitting to be extruded from the sphere of absolute reality, it must refuse to enter it. It has a right to point out that after all the Absolute is primarily a theory of metaphysics and that no metaphysical theory can quite shake off its dependence on the mind by which it was excogitated. So the absolutist is quite as essential to the Absolute as the Absolute is to him. But neither relation is a mystery. For when a theory in its conclusion arrives at a truth which negates *its own* truth, the simplest explanation is that the whole theory is mistaken. Hence it is safer to leave the existence of the Whole a matter of faith than to bolster it up with arguments.

(5) We have seen both *that* and *why* Dr. Bosanquet's 'idealism' must deny the reality of time, change and finite being. But the expurgation of 'appearances' thus demanded is surely sufficiently drastic to explain why, even among idealists, many have preferred to hold that the universe is

not exclusive of time and change. It is gratuitous therefore to ascribe their shrinking from Dr. Bosanquet's system to "a blunder in elementary logic" (p. 104). And, after all, the alleged inconceivability of change is merely a prejudice. If the universe (so far as there is one) appears to change, why should it not really change? If 'all that is' appears to be in movement, why not take its movement to be real? In spite of metaphysics, *eppur si muove!*

Nothing is gained by insisting that all change must take place *within* a rigid frame that changes not. On the contrary, to postulate such a frame only produces an unintelligible relation, an intolerable strain, between the universe, as it is in its 'essence,' and its contents, as they appear. The latter are in continual flux, while the former is immutable. What have they then in common? How can the universe support the flux? Why are not stability and flux *intolerably alien* to each other? No visible or conceivable kinship can be traced between them. That they belong together is a mere allegation. In short Dr. Bosanquet seems wantonly to have involved himself in the old *crux* of how an immutable 'substance' is related to its changing 'accidents'; to which the answer is that the accidents need no support, and the substance is insupportable.

Nor, on the other hand, does Dr. Bosanquet seem to see how paradoxical and incredible his doctrine is. Bit by bit it dissolves away all that is deemed real in the ordinary senses of the word, and leaves the philosopher alone with the All-One. And then it dissolves away the philosopher as well, and leaves the One devoid of content. Instead of showing reality as arising out of nothing and consolidating into being out of becoming, it passes from being into becoming and out of it into nothingness. It is mere Eleaticism, or worse. If a human touch is admitted into this grandiose Creed of Disillusionment, it becomes the old Indian doctrine of *Maya*, the Veil of Illusion which nothing mortal, nothing finite, may pierce. Behind this veil, we are told (on the authority of an eminent finite thinker) dwells an eternal Absolute. 'Of Being,' we ask 'or Nothingness'? In either case, *credat Judæus!* And we have at least the consolation that the Veil of Maya enfolds us all, clings closely, and is not easily rent: indeed Dr. Bosanquet is likely to find that he has not enough of the illusion called 'time' wholly to dissipate the illusions called 'morality' and 'progress'.

III.—IMAGINISM AND THE WORLD-PROCESS.

(With special reference to Prof. Mackenzie's remarks in MIND, Oct., 1921.)

BY DOUGLAS FAWCETT.

"WE have to inquire whether imagination combined with consciousness may not be the same thing as memory, wit, power of discrimination, and perhaps even identical with understanding and Reason. Though logic is not capable of deciding whether a fundamental power actually exists, the idea of such a power is the problem involved in a systematic representation of such a multiplicity of powers."—Kant, cited by Prof. Norman Kemp Smith in his *Commentary to Kant's Critique of Pure Reason*, page 474.

"Underneath all the reasoning, inductions, deductions, calculations, demonstrations, methods and logical apparatus of every sort, there is something animating them that is not understood, that is the work of that complex operation—the constructive imagination."—Ribot, *Essay on the Creative Imagination* (Open Court Cpy.), page 247.

"It is knowledge of structural form, and not knowledge of content. All through the physical world runs that unknown content, which must surely be of the stuff of our consciousness. Here is a hint of aspects deep within the world of physics, and yet unattainable by the methods of physics."—Prof. Eddington on the "empty shell" of physics. *Space, Time, and Gravitation*, page 200.

. . . . . .

The limits of hypotheses, let us say with Mill,[1] are the limits of imagining: of that private imagining which takes shape in abstract concept and pictorial "image" alike. And metaphysics is therefore to this extent, what Ribot calls it, a "work of imagination, superimposed on works of imagination". Further underneath all the closely-knit deductions and logical procedure, whereby hypotheses are applied and tested, lies this same creative imagining. Nay, all reasoning,

[1] *Logic*, Book III., ch. xiv., § 4. *Cf.* also Mach, *Popular Scientific Lectures* (Open Court Cpy.) 3rd ed., pp. 228-229.

whether abstract or comparatively concrete, which is not verbal or merely simulated in symbol, implies imagining; its distinctive service lies in its value as a "means of control and proof" (Ribot); as the "harmonising controlling force" which Bertrand Russell, perhaps hardly aware of the vast significance of the step, subordinates to "vision". Reason, with its guiding logic, seems a secondary creation advantaging only finite sentients, miserably supplied with direct or immediate knowledge, who have to *infer*. We find again, thinks Ribot, that imagining "penetrates every part of our life, whether individual or collective, speculative or practical, in all its forms—*it is everywhere*".[1] We can follow it from the realm of the "logical" or "abstract" imagination, on which Russell rests pure mathematics,[2] to that of the work-aday sense-world[3] or even to this and that sense-datum as "constructively" perceived. Thus far preludial empirical research. This strange pervasiveness must needs prompt inquiry. And, noting the neglect of imagination by most students, we are not to be surprised if, as we fare forward, a new, and perhaps to some unwelcome, horizon shall rise slowly into view.

Creative (as well as conservative or reproductive) imagining has been dismissed airily, *e.g.*, by Nordau, as "a special case of the general psychological law of association". Thirty years ago, fresh from the glamour of Mill, Bain, and their kin, I could have said the same. But the difficulties raised by 'law,' 'association,' 'associable units,' 'retentiveness,' 'transformability of unit' and so forth are too formidable; and associationism in its popular forms cannot stand. In this case, as in that of the truth-problem, there is no getting very far towards a solution without metaphysics. The riddle of *cosmic creation and conservation* must be read; failing which psychology, 'physiological' and other, will yield only a provisional solution, a naïve economy of thinking rather than truth. Creation and conservation within mere human experience cannot be understood, unless we have first grasped their character as they obtain on the great scale. The very "sensations" and "images," on which so much stress has

[1] *Essay on the Creative Imagination* (Open Court Cpy.), p. 332.

[2] *Cf. Our Knowledge of the External World*, p. 241. It is imagination which frees him from the tyranny of phenomena.

[3] *Cf.* Whitehead. "What are the crude deliverances of sensible experience, apart from that world of imaginative reconstruction which for each of us has the best claim to be called the real world?" *Organisation of Thought*, p. 212. The "crude deliverances" are gifts of the world-imagining.

been laid, are, to my thinking, just mythological. I cannot develop this statement farther at the moment, and to oppose it to mere popular thinking in passing must suffice.[1]

Such explanation, as Nordau and others favour, *per ignotius* need not delay us. It did not satisfy even the master associationist Hume, for whom imagination was "a kind of magical faculty in the soul" (*Treatise*, i., § 7), inexplicable "by the greatest efforts of human understanding"; and it will be recalled that for Hume this magical power holds the field even when the ego and the notion of cause are under fire! However even for Hume imagination remains in the main a faculty; is the imagination, ordinarily so-called, of the psychologist which, however pervasive, is still only a phase of our being. Hume too had probably only creative imagining in view, being impressed by the seemingly spontaneous generation of novelty in this domain. Nevertheless he prepares us to consider a further issue. There is surely a well-spring of creation, of originative power, a source of new beginnings, rising in this so-called 'faculty'. This at least we are intimately aware of when we invent aeroplanes, pen poems, or summon an infinite number of infinite numbers from the vasty deep; salient examples these, it may be, of a creativity that invades us in myriads of forms. What now if imagination, ordinarily so-called, the phase merely of our being to which the psychologist, poet and plain man ascribe that name, continues, comparatively untransformed, an activity that underlies the entire psychological individual; what if it is the witness of a wider imagining, of Kant's suggested "fundamental power,"[2] at the base of my sentient life; of the stem on which all the phases of my psychical being alike have flowered? This residual tract of the "fundamental power" (elsewhere all but lost to sight in its creations), refuses, shall we say, to camouflage itself. It resembles—the analogy is a remote one—the germ-plasm which gives rise to all the body-tissues and yet in one quarter of these differentiated tissues maintains itself more or less unaltered. Are we looking at a waterhole in a hummocky floe of set, conservative forms? The suggestion surely is an attractive one, so why not exploit it? We have reached the peak in Darien whence Imaginism, that ocean of grandiose interests, can be glimpsed.

For we need not stop here. The hypothesis widens.

[1] The processes, discussed conveniently as "association," will concern a part of my work on the Individual.

[2] See citation heading this paper.

Perhaps this "fundamental power" at the roots of finite sentients is of basic importance, or even fundamental, in the universe. Those who regard intellect and its logic as evolved in the time-process, but desire, withal, to believe in a spiritual universe, are to be heartened. Averse, perhaps, from Schopenhauer's *Will* and Bergson's *Élan Vital* (a formal concept which recognises indeed creative evolution, but leaves its character unread)[1] disillusioned metaphysicians can prepare for an adventure. Not in a blind Will nor a vague "life" impulse, but perhaps in Divine Imagining lies the clue. And, with this clue in hand, we may decide further that philosophies of the Unconscious are without sting. Divine Imagining at any rate is not a dark Schellingian "Immemorial Being"; It conscires. The very 'activity' or 'energy' of the universe, of which we read in the pages of Fichte and Hegel, is, perhaps — just consciring. Russell tells us that the thinker's business is not so much to argue as to get his readers to "see" as he sees. Well: "see" what Divine Imagining stands for, and the world of mathematical atheism and mere naturalistic realism has vanished for aye.

Kant's system, an awkward monster well worthy of the bantering of William James, had to die. But, like the Norse Giant Ymir from whose death and decay sprang the busy worlds, it broke up into live, but fiercely opposed, intellectual forces whose clash was to subserve progress. Fichte, Schopenhauer, Hegel and Herbart are combatants all of whom, strange to say, find their inspiration in the 'Critiques'. And we new imaginists, even though we got our inspiration elsewhere—perhaps as a genial intuition or 'philosophic vision,' as Bertrand Russell would put it, after exploiting all other tolerable rival aperçus in metaphysics—are glad that Kant's suggestion can be quoted in our support. There are so many sluggish-minded, conservative folk, professors of academic routine, who can never appreciate a point of view for which old-established authority, dogmatic or philosophic, cannot be cited. Kant, indeed, had, it would seem, only finite sentients in view, and he left his suggestion only in part exploited. Still, apart from the concept of the "fundamental power," productive (as opposed to empirical) imagination "buried deep in the soul" figures prominently as a factor in his account of knowledge. Later again in Fichte's explanation of natural objects—noumena being now disavowed—this pre-empirical productive imagination acquires

[1] An 'imperious impulse to create' is no more instructive than would be the derivation of change from psychical "force"—a word.

a cosmic range. Cosmic in range, too, is the *Phantasie* of Frohschammer, but it remains, nevertheless, only a factor. It is not the sole ground of reality: *e.g.*, it does not include God and the Ideas, while we are still refused that real novelty which creative evolution implies. These two defects have vanished from Imaginism as it is conceived to-day. Thus (1) Divine Imagining, in its modes and transformations, is sole ground of reality. It has been called a 'mobile Absolute,' but 'Absolute,' if we are to respect its established meaning, is not a suitable label for ultimate reality which allows of change. (2) Creative evolution with its ever-fresh novelty is recognised in full. By this hangs an account, in part of course speculative, of the beginning and goal of our world-system; and an attempt to understand the causal dynamic which this displays. The writer in 1893 hit independently on the notions of creative evolution and of what is now usually discussed as Bergson's *vraie durée*. These notions seemed to a young, and no doubt "cocksure," panpsychist obvious, not debatable enough to be argued at length.[1] On the other hand, lacking a suitable metaphysical setting, they proved sterile. Creative evolution has to be interpreted as an aspect of Divine Imagining, and no metaphors or symbols that fall short of this concept will serve our purpose. There remains the conservative side of imagining—as real in a cosmic regard as for us—rich with the wealth which prompted intellectualists to posit a static or immobile "rational" Absolute, rich also with much else. Such connexions as certain idealists and even new realists have (often perhaps, too confidently) called "eternal," can be credited to this conservative side; there is no need to dub them "forms of reason" save that, once noticed and generalised as truths, they serve as premises for human reasoning. Reason and reasoning are evolved, to all seeming, along with, and in the interests of, finite sentients. Reason, so boldly hypostasised by Hegel, does not, as Lotze would put it, systematise reality, but rather our ideas *about* reality. Its defects are such that the mystic, treating it as a makeshift, invariably seeks to get beyond it.

[1] *Cp. Riddle of the Universe*, p. 321: "Nature . . . is a continuous creation; the march from firemist to organisms is a revelation with something wholly new at every stage of the journey," and for the *vraie durée*, p. 273.

"Really there are no 'states' at all, but aspects of a mobile whole now raised into prominence, now relegated to obscurity . . . time (primary) is merely the streaming of a many-hued whole, aspects of which attention grasps piece-meal as 'before,' 'after,' 'together,'" and so on.

On the basis then of foregoing remarks the hypothesis of Imaginism can be stated as follows: "Ultimate reality is best viewed as imaginal; as conscious activity (consciring) which, as embodied in content, resembles most nearly that human experience which we call imagining, conservative and creative, reproductive and productive (or constructive). It is not urged that the other aspects of experience are "unreal" or "illusive"; it is contended that the imaginal aspect suggests the divine world-principle more directly than do those others; shows it to us less transformed by the creations which take place during the time-process. "Reason," which many have set up as the Absolute, is an instance of secondary creation such as subserves the living, and the living well, of finite sentients, but which has no standing in reality at large such as could be called cosmic."[1] There is no obscurantism in this attitude; rather a simplicity that goes straight to the mark. A contrast, withal, may prove timely. The universe, interpreted according to the analogy of reason, yields the Hegelian or *rational* IDEA; interpreted according to that of imagining, the *imaginal* IDEA or Divine Imagining. But, while the former solution cannot be stretched so as to cover all the facts of experience, the imaginist embraces them, as a sequel could show, readily enough.[2] It accords also with the intimations of poets; serves indeed, when developed, as Prof. Mackenzie inclines to think, to remove "the last vestiges" of the old quarrel between poetry, religion and philosophy. It provides the utmost possible satisfaction for the meliorist and the embittered critics of our drab terrestrial world. It is, therefore, at least worth being mooted and may justify itself fully when the 'tester' of pragmatist severity has been allowed to work his will. Hypothesis unapplied to the facts of nature and sentient life is, of course, idle.

Imagining at the level of the human sentient is as familiar to us all as redness or cold. Its nature, what it is, alike in the spheres of conservation and creation, is revealed to our consciring unmistakably in what it does. But, on the other hand, we can never be quite clear how it does it. Its "buried" features are always lost to sight; even the conscious creation of a poem is in the twilight. It resembles a spear-shaft of which the tip only, thrust out of a cave, reflects the sun.

Imagining in the sense of Kant's "fundamental power" at

[1] *Divine Imagining*, pp. 2-3.

[2] *Cf. ibid.*, ch. iii., "Positive Vindication," and later illustrative chapters.

the root of the individual is alike too wide and too "buried" to be dealt with as verbal definitions require.[1] It subtends too much to be limited as this or that. It comes most nearly to the surface as that phase of my psychical life, imagination narrowly so-called, which, pervasive phase though it is, the psychologist contrasts with other phases. In this quarter we glimpse that 'psychical form of spontaneous generation,' that becoming *ex nihilo*, which is the mark of real novelty and figures so largely in my account of creative evolution. Something arises out of nothing in all quarters and times of the evolutionary process[2]—in all cases of causation. Writers of textbooks, trying to work with scraps of psychological abstractions and oddments of physiology, have never done even imagination narrowly so-called full justice. "I surmise from my reading of the psychologists who treat of this that they themselves were without this faculty (imagination) and spoke of it as blind men who would fain draw although without vision."[3] Yet very familiar events, the drawing of deductions (all creations),[4] the invention of a carburetter, the making of laws of science,[5] the marshalling of dream-dancers in fancy, or the floating of a self-contradictory concept which the mere logical intellect cannot accept, show the character of the power at work. Small

[1] "Imagination transcends thought in that it makes us aware of the limitations of thought. And how do we define imagination? We fail utterly in attempts at definition. Kant may deduce *forms* of imagination, but he leaves imagination *itself* deep buried in the soul of man."—F. C. Constable, M.A., "The Meaning of Consciousness," *Quest*, January, 1921.

[2] *Cf.* my *World as Imagination*, pp. 365-366, and p. 380 on chance. Also F. C. S. Schiller on "Novelty," a paper read before the Aristotelian Society, October, 1921, p. 19. "Novelty as such *means* Creation out of nothing." Hegel also said that the statement "From nothing comes nothing; from something something" abolishes becoming.

[3] "A. E.," *The Candle of Vision*, p. 27.

[4] When these creations are not methodically made, you have the so-called "intuitive" thinking of Faraday and others. *Cf. Divine Imagining*, Appendix § 1, *Logic*. And in this, as Silvanus Thompson said, you have something "more akin to the innate faculty of the great artist than to the trained powers of the analyst or the logician" (cited by Prof. J. A. Thomson, *Introduction* to Science, p. 78). Genius may reck lightly of method.

[5] "The laws of science are . . . products of the creative imagination," Prof. Karl Pearson, *Grammar of Science*, 3rd Ed., pp. 34-35. I should express the situation thus: The connexions present, independently of human sentients, in the imaginal structure of Nature are *re-imagined* by us in our own ways as practical needs dictate. Hence, among other things, the invention of the famous Mechanistic World of so many poets of science. Materialism itself is only a drab kind of poetry. This imaginative construction, of such value for practice, is useless to serious nature-philosophy.

wonder that Hume saw magic in this domain; and good cause that we should look deep in a venture, however belated, towards explaining it. A degraded form of a universal cosmic activity is in view; but it has not lost all its "original brightness," and shows, in Miltonic phrase, only with "the excess of glory obscured".

This is no place to repeat the vindication of Imaginism which has been undertaken elsewhere. The hypothesis, just indicated, has to be amplified and then tested by application to the domains of nature and finite sentient life. There is no trifling with philosophies of the Unconscious. Divine Imagining, while superpersonal, *conscires;* and this consciring is at once the awareness, the 'energy' and the ultimate continuity of the universe.[1] This ground as sustaining (conserving) and creating imaginal fields, is the cosmic will of some writers, though assuredly not Schopenhauer's or the "unweeting will" of Hardy's *Dynasts*. "Will," however, is too suggestive of a surd. Further Divine Imagining enjoys, it would seem, not that stinted balance of happiness allotted to Bradley's Absolute, but bliss as "ineffable," *i.e.*, as beyond available human comparisons, as the veriest mystic holds it to be. It comprises, too,—the variety native to imagining prompts the suggestion—innumerable world-systems besides that one in which we live and move. In all these alike the only units, properly so-called, are centres of conscious life.

Divine Imagining cannot be equated (as was the Hegelian *rational* IDEA) with Truth. Truth, if representational pragmatism is right, is never, "self-verifying". It is a name for a collection or collections, usually most fragmentary, of true statements arranged according to a plan. Such collections arise piecemeal in the history of finite sentients, and are mostly very poor makeshifts beside the realities of primary interest to which they refer. Geology, for instance, is a triviality, a distorting device or instrument of us earthlice, beside the rock-aspects of the planetary complex present to Divine Imagining. Our Universal History is a dance of shadows in a hall of words.

Still true statement cannot be merely useful. We are able, however, to blend pragmatism with the correspondence theory: correspondence being treated, as by Prof. A. K.

[1] "Divine consciring is Fichte's 'infinite activity' regarded as also aware of its contents; the conscious energy of the universe, that which at once conserves, creates and grasps together all contents," *Divine Imagining*, xxvii. On the meaning of continuity, assuredly a much more thorny question than some of our mathematicians believe it to be, *cf.* Appendix § 2, on that topic.

Rogers (MIND, Jan., 1919), as likeness. There is correspondence between truth-ideation and reality; and should reality prove to contain, as the phrase goes, "contradictions," the ordered statements about it will have to comprise them as well; coherence among truths is thus subordinate and might, arguably at any rate, be misleading. In theoretic science we experiment with ideation: we imagine and hypotheses are born: each of these displaying for apperceptive needs conservative and creative factors. Discussing the most primitive organisms with Minchin we can imagine chromatinic corpuscles, from which evolution moves to the bacteria and the earlier forms of the protozoan cell. These corpuscles or biococci and their doings are creations of fancy. But if, on search for them, like natural objects are found to *penetrate* our spheres of consciring, behaving as anticipatory fancy made them behave, we shall say that the hypothesis has been verified. Our *private imagining* has simulated successfully events in a wider *nature-imagining* in the respects that are relevant to our purposes.

Divine Imagining cannot stand to Itself in a relation of correspondence nor, shining in Its own light, does It require truth-shadows. All relations, even those of the most isolated evolving world-systems, presuppose this ground. It is immediacy which conscires itself; is not the truth "about" the universe, but the very reality so called. In this reality are established all things and all sentients; and we may say that the vision of Prospero, as welcomed by Imaginism, has become good philosophy.

Realism is sound thinking, but it is an idealistic realism after all! A "naturalistic realism" is simply lyrical but dull poetry.

"True" ideation then is a phenomenon of relation within the superrational reality which is Divine Imagining. And human imagining, not verifiable by reference to a sphere beyond itself, is accordingly neither true nor false. This has a bearing on the position of pure mathematics. "In a conversation concerning the place of imagination in scientific work," says Liebig, "a great French mathematician expressed the opinion to me that the greater part of mathematical truth is acquired not through deduction, but through the imagination. He might have said 'all the mathematical truths' without being wrong."[1] In the case of pure mathematics, wherein, as Russell declares, "we never know what we are talking about, nor whether what we are saying is true," we have

[1] Cited by Ribot, *op. cit.*, p. 244.

creations of the fancy, wherein there is a conservative side implied.[1] The deductions, whether methodically drawn or such as show in the "intuitive" thinking of Silvanus Thompson's "great artist" of science, alike illustrate creative imagining. And the resulting imaginal fields, while repelling by rule internal contradiction, are not, merely by *fulfilling that condition, guaranteed to be true.* Reality is wider than truth. They are primarily an extension of reality in the same way as are new suns and nebulæ. Their creation in our imagining adds to the wealth of the universe. I am not concerned with what we discover rather than create; discovery taps, of course, the conservative side of the universe, *i.e.*, of Divine Imagining, already noticed. But sentients, even when discoverers, appropriate what they find creatively; are not inert funnels through which the waters of insight are poured.

Prof. Mackenzie has extended to Imaginism a generous welcome of which I am deeply sensible. The rest of this paper will be a reply to his main criticisms, all or most of which (as indeed he himself suspects) rest on interpretations that have missed my meaning. His verdict is distinctly favourable. Were the difficulties connected with the time-process, evil and contingency removed, "the principle of creative imagination," he says, "would not have much to fear."[2] The principle, as we have seen, is also conservative; thereby place is found for those so-called logical or stable connexions which so many hold immune from change; nay, despite their enduring, as quite unsubjected to time![3] It remains to suggest how the difficulties can be surmounted.

But first I will note a minor consideration in the regard of Hegel. My critic suggests (p. 456) that a "spiritual," not a rational, Absolute is Hegel's last word. Hegel, however, in the *Philosophy of History*, in which his thought is more concrete than usual, reaffirms that Reason is "exclusively its own basis of existence," the "energy" and "sovereign" of the world. And surely it is precisely this Reason, which passing into its self-externality as Nature, closes again with itself as the Absolute Idea, as Spirit. Dialectic, again (I am referring to the text of the review) is not merely *our* way of discovering the abstractness of *philosophical* notions. It is Hegel's "universal and irresistible power" which animates Reason in

[1] *Cf. Divine Imagining*, p. 39.

[2] Prof. Mackenzie has recently modified his views as to time and allied problems in ways that, he believes, greatly lessen these difficulties.

[3] *Cf. Divine Imagining*, pp. 114-121. 'Timelessness' for many vague writers seems to mean no more than freedom from any possible change. But even the changeless has to *endure*, or, shall we say, to be sustained stably. Conservation (*cf.* Postscript) implies a yet deeper Creation.

all of its manifestations: the self-movement of the notion which (since Nature and the sphere of Mind = "applied logic") shows even in physical things, *e.g.*, in meteorological action. ". . . We must not suppose that the recognition of its existence is peculiarly confined to the philosophic intellect. It would be truer to say that Dialectic gives expression to a law which is felt in all other grades of consciousness, and in general experience. Everything around us may be viewed as an instance of Dialectic."[1] There is really no other principle of movement with which a *rational* IDEA can be ensouled. Are we aware of a broken vase or a shower of rain? "dialectic" has to be the blessed word invoked. Reason has become veritably *nominis umbra.*

I suggest that the real "secret of Hegel," overlooked even by Dr. Hutchison Stirling, lies in this. Hegel started, on the basis of the Categories, with the hope of showing that Reason is sole ground of appearances. In doing so, he was forced—such was the pressure of the reality to be interpreted—to exploit Reason *as if it were imagination.* It was impossible to get forward otherwise in such quarters as Nature-philosophy, Aesthetic, and the Philosophy of History. And the "faculties" of the finite sentient cannot be treated as "additional specifications" of Reason.[2] Strictly speaking, too, even in the *Logic* the semblance of the "self-movement of the notion" is achieved by what really is a feat of the logical or "*abstract*" *imagination*, as Russell calls it. The initial notion, Being or "underived indeterminateness," does not come to anyone straight through his primary experience, but is a command-concept of his imagining, a novelty which is created for an end. And the successive solutions of the "contradictions" of the logical series flow not from this self-propelled notion, but are imported into it by an *inventive philosopher* who is reimagining empirical reality as the famous "realm of shades" which we find in the *Logic.*

And now as to the question of time-process.

We are not considering conceptual or homogeneous time. Primary time means certain manners in which contents are present to Divine Imagining.[3] Hence the Kantian time-subjectivism is false. These manners of presence, to wit duration, simultaneity and succession, exist not only for us but in the wider real. I have suggested how they are interrelated in the case of a world-system both as it pre-exists to, and as

[1] *The Logic of Hegel*, Wallace, pp. 127-128.

[2] This phrase of Hegel's is illuminative. Verbally he seems consistent, but he is capitulating in fact to a plastic "fundamental power" and a real time process.

[3] *Divine Imagining*, p. 106.

it falls into, creative evolution.[1] Prof. Mackenzie, by the way, questions the suitability of the term "falls". This passage into creative evolution may be regarded as a "fall" or a "rise" according as you regard it as a lapse of the system into conflict, division, and evil or as giving birth to innumerable new finite sentients and mediating, to their final satisfaction, a 'divine event':—

> Nay, nay, nay;
> Your hasty judgments stay,
> Until the topmost cyme
> Have crowned the last entablature of Time.
> O heap not blame on that in-brooding Will;
> O pause, till all things in their day fulfil![2]

The cross-section of a minor part of the creative phase, such as that of our planetary sub-world to-day, inspires pessimism; the entire process can be vindicated only in the result which resumes and exalts it.

The time-relations are complicated with those of space. It may be that, in the case of an evolving world-system, space or coexistence arises within the time-process as one of the early triumphs of the imaginal dynamic, of course antedating by æons the appearing of finite sentients of the human sort.[1] On the other hand, it may be that time-space preexisted to the creative process or metaphysical fall. Who can say? But, if the second alternative holds, we still confront features of content in Divine Imagining: we are far from that topsyturvydom in which an empty abstraction called time-space exists substantially in its own right. Not only is the initial state of a world-system *conscired:* it is also vastly richer than any discussion of time-space could suggest. It is an inchoate *romance*, a poem of that golden age before the clash of sentients:—

> Corcordes animae nunc et dum nocte premuntur
> Heu quantum inter se bellum si lumina vitae
> Attigerint, quantas acies stragemque ciebunt!

Of course, what Prof. Eddington calls, the "empty shell" of modern speculative physics can help us little towards an understanding of the real psychical continuum of Nature.[3]

[1] *Divine Imagining*, ch. ix., "The evolution of Nature".

[2] Chorus of the Years in the *Dynasts*.

[3] We are considering primeval cosmic time and space. The indefinitely many discordant time-series and distinct spaces of modern relativist discussions belong to the realm of division and conflict in which finite percipients have to measure. ". . . What philosophy has to recognise in scientific relativity is simply an increased degree of accuracy due to the greater exactitude of physical concepts, which means, again, that little, if indeed anything, truly metaphysical is in question at all."—J. E. Turner, MIND, Jan., p. 52.

Here as elsewhere Prof. Pringle Pattison's remark holds good that "the truth of the poetic imagination is perhaps the profoundest doctrine of a true philosophy". Let us make use of this imagination accordingly.

The metaphysical fall into change is not difficult to conceive. "A truer image of the world, I think, is obtained by picturing things as entering into the stream of time from an eternal world outside than from a view which regards time as the devouring tyrant of all that is."[1] For "eternal" here we may read "conservative" world, while we must be careful not to whittle down time to succession alone. What, however, is this succession in our imaginist scheme? It is not unreal, a show merely for finite sentients, as so many absolutists declare. It is just the *Form of Creation:* an aspect of Divine Imagining and consequently as ultimately real as this fundamental power itself. A fixed Imagining, without power to initiate change, were surely an absurd principle. To be is to be active and, as active, Imagining sustains and creates. The changing of creation is the very time-succession of our quest. And with the arising of finite sentients in this changing comes the creation of creators. Observe that not only creation but destruction must be recognised. A static Absolute cannot scavenge its kingdom. Not so this protean power. During the lapse from, and return to, the harmony which is beauty, delight and love there arise innumerable abominations from which reality has to be freed. Something, qua novel, becomes from nothing; it can disappear also into nothing. Superior levels of consciring may cease to conscire it. Its support fails. It vanishes and leaves not a rack behind.

Evil, which implies conflict, colours the realm of division —of creative evolution; in part it is overruled and transformed in the real time-process, in part, however, it may perish utterly even from that "past" which conservative Divine Imagining sustains.[2] When an "Eternal Spirit," as Prof. Mackenzie calls the Finite God of a world-system, decrees the metaphysical fall, his self-diremption is decreed therewith.[3] He remains, "with excess of glory obscured," a Finite God, but he is now to be *continued* also in the minor gods and humbler fragmentary sentients of all grades, from psychoid or mentoid upward, which the new evolving world-system, objectively his body, includes. Thus the very

[1] Russell, *Our Knowledge of the External World*, p. 167.
[2] *Divine Imagining*, pp. 149-153. On Evil, *cf. World as Imagination*, pp. 566-604.
[3] *Cf. Divine Imagining*, pp. 225-227.

"creation of creators," which Prof. Mackenzie desires to accent, arises in this way. Since each sentient is now "lui-même" (*cf.*, MIND, July, p. 461), a centre in which novelty is born out of nothing,[1] variations of all sorts will arise. The partial dissociation of God into the sentients is the condition of their appearing at all. You may call this appearance, in Schopenhauer's vein, the "fundamental evil" or, as a meliorist, you may be hopeful and wait patiently, like Hardy's Chorus of the Years "till all things in their day fulfil". But at any rate you will have to allow to the sentients something of the spontaneity and magic that belong to their source. Hence miscreations, born out of nothing in a loose system, account for much; for the merely abominable that subserves no wide purpose. The many useful evils, *i.e.*, evils which, for a long view, are found to subserve sentient life, need not occupy us. They justify themselves.

The misunderstanding as to 'chance' is rectified easily. 'Absolute chance' is not being argued for. I am noting that to a basis of given conservative factors there can be *added* creations, novelties at once (1) unpredictable and (2) born out of nothing. And when these abrupt beginnings occur on the lower levels of sentient life, we have to reckon with an "undetermined" element which may work anon for weal or woe. It is not a question of supposing conditions "outside Divine Imagining": it is a question of creations, of which innumerable centres, even within some subordinate demiurge, may be the seats. For which reason I described this 'chance' as a "feature of imagining as it works on low levels of evolution,"[2] not differing therefore in kind from that spontaneity which shows in what we call freedom in its various higher modes.

There is no danger, as Prof. Mackenzie fears, that the creative variations will ever escape control. At long last one aspect of the cosmos serves to balance another. And creation is limited by the circumstances on which the novelty has to be superinduced. Imagining "improvises, like a Shakespeare among ourselves, on a basis of given conditions which impose genuine, though elastic, restrictions on creative power".[3] Consider the invention of the game of chess. The indefinitely many possible variations presuppose, of course, the creative ingenuity of players who are realising purposes. But, however brilliant may be the players, their creations are limited by the conditions laid down in the rules of play.

[1] *Vide supra.*

[2] *Divine Imagining*, p. 144. See also *World as Imagination*, pp. 377-385 on "chance".

[3] *Ibid.*, p. 446.

This unpredictable becoming *ex nihilo* may involve grave disturbances over large regions, and corresponding difficulties for the finite sentients which have to deal with them. Hence 'trial and error' play so important a part in the time-process. And I must suggest that even Prof. Mackenzie's "Eternal Spirit"—the finite God of a world-system—may have to experiment if, relatively even to his own system, he is limited in power or wisdom or both. A world-system is a big area. Nevertheless its God must not, for that, be equated with the Divine Imagining which shows alike in him, in the oppositions with which he contends and in, perhaps, indefinitely many other Gods, and systems beyond our ken. 'Trial and error' obtain wherever finite sentients have to adjust themselves to their surround, even if some of these sentients, in virtue of their power, benevolence and wisdom, are entitled to be called divine.

POSTSCRIPT.—The Ground of appearances has been discussed in this paper as alike conservative and creative. But conservation (as students of Descartes might urge very properly) implies sustaining creation, failing which the stably sustained would vanish and leave not a rack behind. Thus Creative activity dwells in the deepest depths: a consideration quite welcome to those who find in Divine Imagining the *fons et origo* of appearances. To be is to be created or create, or both. It becomes sunclear why Imagining is to be substituted for the immobile, the frozen, spiritual Absolutes of the past.

IV.—EINSTEIN'S THEORY AND PHILOSOPHY.

By H. Wildon Carr.

Mr. J. E. Turner in an interesting and incisive article in the January number of this Journal (p. 40) has submitted to detailed criticism the argument, advanced by Lord Haldane in his *Reign of Relativity* and by myself in my *General Principle of Relativity* and articles in *Nature*, that Einstein's scientific theory is based upon a distinctively philosophic principle. In common with many, probably with the majority of, leading philosophers, and with a few, though probably a minority of, mathematicians and physicists, Mr. Turner holds that there is no real identity between the scientific and the philosophical principles of relativity. I do not propose to examine his objections in detail but to restate the position with particular reference to the Gallio attitude towards the mathematical principle which he and so many of my colleagues profess to maintain.

A typical instance of this caring-for-none-of-these-things attitude is afforded me in an article, entitled "On my friendly Critics" by Mr. Santayana in the *Journal of Philosophy*, 22nd December, 1921. It is the apologia of one who prides himself on a certain philosophical detachment. I will quote the whole passage. "I have no metaphysics, and in that sense I am no philosopher, but a poor ignoramus trusting what he hears from the men of science. I rely on them to discover gradually exactly which elements in their description of nature may be literally true, and which merely symbolical: even if they were all symbolical, they would be true enough for me. My naturalism is not at all afraid of the latest theories of space, time, or matter: what I understand of them, I like, and am ready to believe: for I am a follower of Plato in his doctrine that only knowledge of ideas (if we call it knowledge) can be literal and exact, whilst practical knowledge is necessarily mythical in form, precisely because its object exists and is external to us." The natural world which he distinguishes from "figments of fancy, interesting as poetry is interesting," is the "world of medicine and commerce". That this is actual, he says, is "so obvious to every

man in his sane moments that I have always thought it idle to argue the point". I am ready to admit that every man in his sane moments makes this distinction between the actual and the mythical, but for a philosopher on the ground of such a distinction to accept the actual world uncritically at its face value appears to me a renunciation of philosophy.

It is not a little curious to contrast this marked indifference of a philosopher to the new scientific discovery with the profound consciousness the mathematicians express of its fundamental philosophical significance. I have in mind particularly Eddington, Weyl, Thirring and Einstein himself, to mention only a few. No doubt in the seventeenth century when the new discovery of Copernicus was winning acceptance among men of science the orthodox Scholastic philosophers took up the same attitude of indifference towards it which so many contemporary philosophers are now taking to Einstein's theory, and yet the whole movement of modern philosophy, which arose with Descartes, clearly starts from the Copernican revolution, is based upon it, and not only historically but intrinsically is unintelligible save in the light of it. Prof. Weyl has expressed the opinion that the discovery of Einstein is no whit inferior to the discovery of Copernicus in the tremendous consequences which follow from it and in its complete reversal of our ordinary conception of the nature of the physical universe. This is no exaggeration. To me it seems certain that even the most brilliant scientific achievements of the nineteenth century will in the future be classified as pre-Einstinian.

The analogy between the two theories is in itself very remarkable. It may be illustrated in regard to quite ordinary experience. For example, everyone knows the danger of alighting from a train in motion and also that the danger is proportionate to the velocity of the train. Most of us think that the explanation is simple, and so obvious as to seem self-evident. It is due we suppose to our inability to keep our balance. It seems both impossible and unnecessary to imagine an alternative. We suppose that the moving system of the train has induced some subtle change in our mentality, forming a habit which we cannot break when we pass suddenly from the train to the platform. Yet there is an alternative explanation. It may be due to a cause which is purely geometrical and to no change whatever in ourselves. The space into which we step may be so altered in its character by the movement of the train relatively to it, that the direction of things entering it are automatically changed. Again, to take another example, we are all familiar with the popular

experiment in physical laboratories to show the behaviour of iron filings when a magnet is brought into their neighbourhood. We say that the filings are magnetised and suppose that the definite and ordered arrangement they assume is due to a change they have undergone under the influence of the magnet. But there is an alternative explanation. It may be due to the geometry of the magnetic field. It may be that the filings undergo no change in their nature whatever and that their apparent behaviour may be the simple and mechanical effect of the strains and tensions of space in the magnetic field. According to the generalised theory, this is the scientific explanation. The reason for choosing these alternatives in each of these cases is that the interpretation of the phenomena they offer is at once simpler and intelligible. Precisely in the same way when Copernicus announced the helio-centric alternative as an interpretation of celestial phenomena, it forced itself on the acceptance of the scientific world by its simplicity and intelligibility.

I am quite ready to admit that philosophy, in its technical meaning, is not necessarily concerned with the reasons which men of science may have for deciding between alternatives such as these. But suppose a philosopher or a philosophy to be committed to one interpretation of the facts, presupposing it as the starting-point of theory and therefore excluding the alternative, there is no possibility of indifference then. It is not a matter for the mathematicians to settle, for the philosophy stands or falls with the decision. This seems to me to be precisely the case in which the materialists and natural realists stand. They suppose they can be indifferent whereas their whole philosophical principle is at stake.

To return for a moment to our two illustrations, the alternative interpretations bring to light two principles which present to one another a complete contrast. The common-sense interpretation invokes as fact, on the basis of empirical intuition, a principle which on the objective side is both unintelligible and irrational—the principle of action at a distance; and on the subjective side supposes occult changes in the nature of the agent which induce an illusion in the action, in itself quite inexplicable. The other principle interprets the behaviour by simply setting itself to discover the geometry of the field in which the apparent action occurs. From the standpoint of pure methodology only the second principle can claim to be scientific.

So far, however, I have spoken of these two alternatives as though the choice were freely open to us to accept or reject either, and as though, in choosing, the only decisive factors

were simplicity and convenience. But science requires more than this, it wants assurance of fact. It must be satisfied before everything that the basis of reality on which it builds is absolute. It cannot compromise. Galileo, after his recantation, when the famous words *eppur si muove* escaped his lips, was instinctively expressing the inmost nature of the scientific spirit. Einstein is his true follower. He sees with the clearness of intuition that the one essential condition of science is the absoluteness of its foundation, and his marvellous genius has directed him unerringly to the only ground on which that absoluteness can be established—sense-experience.

I will now explain what I take to be the special and important work of Einstein so far as it affects philosophy. It seems to me then that just as Descartes, probing the significance of the Copernican theory and forced thereby to his method of universal doubt, discovered the fundamental truth that the "I think" affirms an existence secure from doubt, so Einstein, searching for the significance of the negative result of the Michelson-Morley experiment, and convinced of the impossibility and futility of presupposing the existence of the absolute which science requires, in a hypothetical substratum, concluded that it must lie in knowledge itself. To this conclusion he was no doubt directed by the influence on him of the work of Ernst Mach. He finds the absolute precisely where Descartes found it, in the "I think" of active living experience, but whereas Descartes failed to discover any way of passing from the "I think" to the reality of the physical world, and at last fell back on the expedient of invoking the principle of the veracity of God, Einstein has found a way which at no point whatever introduces either hypothetical factor or transcendent cause. It is this, apart from any special value in his actual mathematical work, which constitutes the claim of his theory to be philosophy. His scheme of a universal geometry is in its essentials remarkably similar to Descartes's universal mechanism. It differs from it in the important particular that whereas Descartes conceived the universe as three-dimensional, and its space as Euclidean, and independent of the time-factor, Einstein conceives it as four-dimensional with time as one of the axes of co-ordination, but the superiority of Einstein's scheme from the standpoint of philosophy is that its construction and constitution are inherent in and never transcend the conditions of actual individual experience.

The principle of relativity is not the rejection of an absolute and the affirmation of universal relativity. That would

be equivalent to the affirmation of universal scepticism. What the principle rejects is an absolute which is independent of experience, and therefore outside knowledge, an absolute which has to be postulated as the condition of knowledge. The absolute of the relativists is in experience and therefore wears a different aspect. The principle of relativity claims that it is workable and that it provides a position from which advance can be made and nature interpreted. It yields in the first place a mathematics, and this in its turn can offer a material to physics. It completely reverses therefore the old order according to which mathematics was an abstraction from physics. In the new principle physics depends on mathematics and not *vice versâ*, and mathematics becomes an empirical instead of a transcendental science.

It was a scientific discovery, and a philosophical necessity arising from that discovery, which led Newton to affirm absolute space and time. It is because the theory was based upon and necessitated by a definite scientific fact that Newton never regarded it as hypothesis. The discovery was that there is a velocity of light. The story of the reflection on the fall of the apple belongs to the year 1665, the *Principia* was published in 1686. It was midway between these two events, in 1675, that Roemer, the Danish astronomer, observed the discrepancies in the times of Jupiter's moons, which could only be satisfactorily explained by the theory that there is a definite velocity of the propagation of light. It was this discovery, previously neither suspected nor even imagined, which necessitated the postulate of absolute space and time. It is clear that without such a postulate it was no longer possible to fix a time-table for astronomical events. The planetary movements do not occur when they are observed, their precise date must be calculated. This is why, in spite of all philosophical difficulties and theological objections, Newton's postulate won immediate and universal recognition in science. For two centuries nothing occurred to throw doubt on it. But now a scientific discovery, and a philosophical necessity arising from that discovery, has led Einstein to reject this postulate and compelled him to look elsewhere than in space or time, or generally in the external world considered as independent existence, for an absolute on which to base the concept of physical reality. Let us then endeavour to follow the argument in so far as a principle of philosophy is involved.

The velocity of light must, as Newton saw, be included in all the equations which are concerned with the measurement

of celestial phenomena. Scientific discovery has now established as fact that this velocity, though finite, is constant for all observers, whatever the relative velocity of the systems to which they are attached. The postulated absolute of Newton's *Principia* is therefore condemned as futile. The reason is obvious. There can be no experience of an independent system of reference which would provide us with the means of compounding the velocity of light with velocities of translation, because light signals are our ultimate resource. Clearly all astronomical observations, that is, all knowledge of the universe beyond the range of our muscular and other bodily activities, depend on visual experience and its interpretation. Velocity is a ratio between two factors, space and time. If then a velocity is constant under conditions which imply variation, the component factors must vary. It follows therefore that the absolute is not in the object of knowledge taken in abstraction, that is, it is not in the external world, it is in the observer or subject of knowledge and a function of his activity. How then is subjectivism avoided and physical science possible? This is the point of supreme philosophical interest.

The absolute is the "I think" which in affirming its activity posits existence. The "I think" does not presuppose existence; it is not generated but generator. What does it possess wherewith to construct, order, regulate, and constitute the world which it posits by the very nature of its activity? Descartes replied, extension and movement; these, he said, are clear and distinct ideas in our mind and their existence as an external world is guaranteed by the veracity of God. Einstein replies, sense-experience; this alone is the immediate object of consciousness, and from it therefore the physical reality of science is constituted. What then is the mode or form of the activity of the "I think" which gives this physical reality? Einstein replies, geometrising. Sense-experience presents itself to consciousness in the form of event, and the fundamental activity of consciousness consists in co-ordinating events. In this co-ordinating we use four axes, three for space and one for time, and thereby we are able to fix the point-instant of every event in relation to every other. How does such a process, being essentially individual, yield a common objective universe, a universe of which there can be mathematical and physical science in the absolute meaning? It is in the answer to this question that the whole significance for philosophy of Einstein's scientific revolution seems to me to lie.

The starting-point of the new theory is the rejection outright, not on purely logical or epistemological grounds, but

as experimentally disproved, of the belief in a substratum, material or spiritual, mathematical (space-time) or physical (matter or ether), hypothetically postulated as the cause of the phenomena of nature. The rejection of this hypothesis in any form leaves us with only one alternative. If the absolute is not what we observe in nature, and nature does not supply us with a standard of reference, then the phenomena of nature must be relative to a standard which is furnished by the observer himself. That we do in fact furnish ourselves with a standard in measuring phenomena is entirely in accord with experience. Our "I think" is as matter of fact attached to a system of reference, primarily to our body as the mobile instrument of activity, secondarily to a particular physical environment which provides and also limits the range of our activity. It is from these systems of reference, and in relation to them, that we derive our axes of co-ordination, and determine our units of measurement. We find therefore in ourselves, in the activity of consciousness itself, in the nature of the "I think" and the necessity it imposes upon us of organising our activity, both the standard of magnitude and the norm of direction. When we observe systems in movement, systems of reference to which we are not attached and which are moving uniformly or non-uniformly in relation to our own, we co-ordinate these, but necessarily from the standpoint of our own system at rest. If this be granted let us see precisely what follows from it. The principle declares, we repeat, that an observer attached to a system of reference, co-ordinates every point-instant of an event, and the world-line, that is, the track of such an event in the four-dimensional universe of his sense-experience, not from the standpoint of an independent absolute system, but from the fixity or stability of his own system regarded as at rest. It follows then that if the observer's system itself changes relatively to other systems such change will appear as change in the other systems. Also if the observer pass suddenly from one system of reference to another, which may even reverse all the conditions of the first, he will carry with him the standard and norm, and these will automatically adjust themselves, so that every system into which he passes will by the very condition of his attachment to it be a system at rest. All this the principle itself explicitly lays down. We have then only to extend it by the recognition that to every observer attached to a system moving in relation to ours, his system is for him at rest and ours to him is moving, and his axes of co-ordination must then vary in relation to ours according to the velocity and uniformity of his

movement relatively to ours. There is no limit to this principle theoretically. There is a geometry therefore of every point-instant in the universe because we can conceive it as a system of reference from which some observer is co-ordinating events. No point and no instant can have relations to other points and other instants which are identical for observers in different systems. Is such an infinite plurality and absolute subjectivity consistent with the community of basis which science demands for its reality?

A very simple illustration from ordinary experience may serve to indicate the nature of the reply to this question. What do we mean when we speak of pain? We all know what it is, and we distinguish it into kinds according to the definite conditions under which it occurs, and not according to the individuality of the persons who experience it. We conceive pain as identical though the subjects who experience it are diverse. In what then does this identity consist? Clearly not in sameness for there is no sameness. What one individual experiences cannot be experienced by another. Identity consists simply in the fact that we can establish point-to-point correspondences between individuals. No one imagines that to establish identity there must be assumed to exist an independent pain-in-itself which no one suffers but which is the transcendental cause when anyone suffers. Einstein holds that precisely the same principle applies to the co-ordination of events and to scientific reality in general. There is no unco-ordinated event, no absolute event in an independent system, and there is no sameness of events occurring to different observers. In order that there shall be identical events for observers in different systems, all that is necessary is that the axes of co-ordination of any system shall correspond with those of another and therefore be transformable one into another. Observers in different systems will then describe the observed event in the same terms, the facts will be common to all, and the laws of nature will be universal.

The whole conception of the universe is now seen to be the exact reverse of that on which materialists and natural realists have insisted. Instead of a limited knowledge of an infinite universe, the new principle gives us a universe the knowledge of which is unbounded but the reality of which is finite. The two essential conditions on which the materialistic conception depended, simultaneity and direction, conditions of the possibility of dating every event and fixing every point, have been falsified by experiment. The new conception is not the arbitrary speculation of a fertile imagination,

it is imposed on thought by an inherent necessity of its nature. The physical universe is the systematisation of infinite space-time systems, on a principle which only asks us never to loosen our hold on experience in order to go beneath or beyond it, but always and only to seek to interpret it.

Einstein's conclusion that the physical universe is finite but unbounded follows necessarily from the principle that the absolute is the "I think" of personal experience and from the fact that the nature of its activity is geometrising. The universe is finite because the straight line of every observer is curved for other observers, and therefore every straight line is a geodesic which at infinity must return on itself; and the universe is unbounded because the approach to the limit is infinite.

I will carry this argument no further, not because I am likely to have said enough to silence criticism, but because to interpret the full significance of the argument for this conception of a finite yet unbounded universe would involve the history of the mathematical researches of Gauss and Riemann, and the physical researches of Faraday, Clerk Maxwell, and their successors, a task I am not competent to undertake. My argument is addressed to my fellow-philosophers. I am amazed at what seems to me their short-sightedness in imagining that philosophy can be indifferent to this stupendous revolution in science.

V.—DISCUSSIONS.

"THIS OR NOTHING."

I SHOULD like to make my position clear, if I can, on two principal points of the logical doctrine asserted in my book *Implication and Linear Inference*. Such explanations would have been better in place, perhaps, in a second edition, rather than in MIND at an interval of two years after Prof. Broad's very courteous review.[1] But an opportunity of the former kind does not always occur.

I can best introduce my explanations if I refer here and there to the review in question. But my hope is that what I say may be enough of a positive development to have an interest for its own sake, and not to be regarded in a controversial light.

The two points I wish to speak of are (1) My attitude towards accepting laws of logic or axioms of science separately and each on its own merits, and (2) The possibility, on the principle I advocate, of admitting that there exists a legitimate Induction, such as establishes general laws which can be "borrowed" and "applied," distinct from the "linear" inference against which my main argument, in the work on Implication, is directed.

It appears to me to-day that one preliminary word is needed to justify the negative approach to my principle indicated in the phrase "this or nothing". Why not, "this because of everything"? The principle seems naturally to frame itself in the former shape. And I suppose the reason is that denying a proposition may force us to deny many propositions which are not necessary to prove it. And, therefore, by examining how much we must affirm in the antecedent in order to establish the consequent, we could not exhibit the connexion of the two as completely as by enquiring how much we must deny if we deny the consequent.

(1) Thus it would seem that at any rate we lose nothing by starting from the denial of the consequent. It experiments with the truth the condition of whose validity is to be considered, and raises a direct discussion of what that condition is.

The form of argument which I am going to adopt in carrying out this procedure, is not, I think, the only form conceivable; but I prefer it as representing, in my belief, the normal path of our thought, although it involves, I think, a paradox which I have not seen noted before.

[1] MIND, July, 1920.

Thus, instead of at once pronouncing that we must violate one of the laws of logic, the law of antecedent and consequent, if we elect, on denying the consequent, to maintain the affirmation of the antecedent; we would rather try the experiment of relying on those laws to the bitter end, and noting the result to our knowledge and to themselves.

In this form of argument then, I should not refuse to draw the normal inference from the denial of a consequent to the denial of its acknowledged antecedent. The denial of the consequent is here postulated to be unreasonable, but we accept it *ad hoc*, and ask where it leads us. It leads us, of course, through the denial of the first antecedent to the denial of the whole series of antecedents in which each in turn is a consequent. And this result must necessarily expand, and infect ultimately the entire connected system on the basis of which the truth originally denied is taken as established. Every such system possesses connexions which link each individual truth with an ample system of confirmatory truths, and as these successively come to be denied the disease must spread deeper into the roots of the reality we believe in, and therefore also more widely over other superficial truths which share these roots with the truth first denied.

I will not occupy space by drawing out an example, which is easily done, but will merely say what I have in mind as a very obvious case, and that is that the *ungrounded* denial (this of course is the point; a grounded denial would merely set up the ordinary process by which experience corrects our knowledge) of, say, a historical truth, would bring us in a very few steps to the denial that sense-perception has any validity at all (not merely the denial of any special theory of its *modus operandi*). And along with this would go the reliability of historical canons, and of human testimony and communication *in toto*. How far our doctrine of space and time would survive the repudiation of sense-perception it is beyond me to say. But I should have thought the world of our experience would be pretty well reduced to chaos by such a train of argument, which might be extended, I really think, at pleasure. With any scientific truth such an argument would be much more effective.

But of course, as the reader sees at once, in this argument we have implied an extraordinary paradox. We have not *prima facie* contradicted the laws of logic, but on the contrary we have so far got a lot of work out of them, using them to demolish the accepted structure of our world.

Nevertheless, at the bitter end, it seems to me that we do get the surprising situation that in virtue of the laws of logic we are driven (supposing the complete success in principle of this negative argument) to *try to assert*, what has to begin with a perfectly definite meaning, "No propositions are true". Such a proposition claims of course to deny both itself and the laws of logic, which so far we have not denied, but have relied on.

There is a doctrine (Broad, MIND, 115, p. 327) according to which this form of words "Nothing is true" is meaningless, and so is not a proposition. I am not able to estimate that doctrine, but the suggestion is helpful. I accept it, and interpret it thus.

The proposition in question is certainly in one aspect meaningless. Every negation contains a failure to think. Every negation rests on a privation. At the actual point where exclusion or collision should be present the terms do not quite come together. There is a gap. We "do not see," we "cannot understand," we "cannot think" how the proposition can be thought; how its terms can be brought into union. "No square is round"; that is, we do not see how round and square can be thought as one. Now our proposition "Nothing is true" is the limiting case of this failure. In face of our postulated denial of an unimpeachable truth, we "do not understand," we "cannot think," how any proposition can be true. The meaninglessness, or failure to achieve a thought, characteristic of negation, is here extended to the union of the terms, say, "proposition" and "truth". A proposition to this effect is certainly, on one side, meaningless. But yet again we know what it means, as we know what is meant by a square not being round. We know what a proposition is and what truth is, and so we know what we are attempting when we try to think them in one, and, because of a certain condition, fail. Thus the proposition is meaningless, as the limiting case of negation. It is a failure to think, as conveying a contradiction; but it is not unintelligible.

Now in being brought to attempt to assert it, we have been brought to attempt to deny the laws of logic; for they are propositions and we are to deny all propositions. How is it conceivable that we should deny them, when we have assumed them throughout our argument? And how are we to state the reason, for which, nevertheless, we find it impossible to deny them?

It would be a paradox, but it would illustrate my view very suggestively, to say that we deny them, under the supposed condition, because it forbids us to make a proposition; and not that we are unable to make a proposition because we are denying the laws of logic.

For I do not think that the view which says that we accept them, and other truths which seem to have the same kind of evidence, severally each on its own merits, and the view which I express as "This or nothing," are really so much in conflict as might appear. What I should say here is that the fundamental fact is the spirit of self-development in thought, revealed by the ideal experiment made in actual thinking. Thought *will* go forward if it possibly can. It *will* affirm meanings; and order or connexion which is one side of meaning. This might be called a non-formal principle.[1] The laws of logic and other axioms are merely, I suggest, the expression of our elementary experiments in

[1] *Cf.* Bradley, *Principles of Logic*, p. 451.

actual thinking at different points of our experience. Each, therefore, is certainly necessary on its own merits. Thought, experimenting at the point concerned, will make its advance, and will not be denied. But this is only because thought cannot help doing its work of synthesis and analysis, effecting any advance to which they point the way; and all the laws and axioms are just initial conditions of its orderly connexions, consisting in pervading connexions of the same kind.

And, as I suggested, if thought is stopped from experimenting, *i.e.*, from thinking, then it has no means of displaying its necessity. Here *is* actually our ultimate contradiction. If we are not allowed to think, we are not allowed to exercise the act which these pervading laws need for their establishment. They are not premises. They are principles evident throughout our thinking as the manners of its self-assertion. The principle of Disjunction does not depend on the Law of Excluded Middle. The "law" is a case of the principle, which you can see at work in any disjunction. It is a consequence of using the negative as an absolute alternative, which is a necessity of the method by which thought proceeds. But if thought is forbidden to proceed, the principle cannot be established.

This is not a "psychological" necessity. It is a necessity of the nature of reality which it is thought's function and character to reveal. How do we know it is thought's function and character to do so? Because every act of thought says so. Thought, in asserting, does not say "I think so". It says "it is so". "I think so" is merely one case of "it is so," and is as absolute as any other assertion of a fact about reality.

Thus in my view the Laws of Logic and other truths having apparently the same kind of certainty, are, certainly, severally necessary on their own merits, because they are established by ideal experiment as essential to the working of thought in affirming the systematic nature of reality. You can therefore actually use them, where a barrier is set up against thought, to exhibit the demolition of experience which results, and yet this demolition, as annulling the process in which alone they can be displayed, ultimately must bring them into contradiction with themselves. You can grasp the Law of Identity if you can make a proposition. But suppose you have estopped yourself from framing a proposition?

Of course in a sense the whole argument is ideal and imaginary. In fact, thought will not give way, and refuses to enter into the intolerable situation depicted, in which it at once must, and cannot, fulfil its own nature. But that is why it cannot and will not deny an unimpeachable truth, deny, that is, without a special suspicion at some point. If it did, it would annihilate its world.

(2) I want to point out that I fully recognise a kind of inference, which may be called Induction, which works with borrowed premises and to some extent with the substitution of particulars for generals. But I believe that my principle will explain and

justify this kind of inference in the only way which is logically sound.

Here the way is more than half cleared for me by Prof. Broad, and I have only to show that I can avail myself of his distinction on my principle. I quote from MIND, 115, p. 335: "Thus the function of substituting constants for variables is quite different in the two cases. In the argument about the moon's motion it is a step that actually has to be performed in the course of the proof if the conclusion is to be reached. In the syllogism about Socrates it is not a step in the proof, but an additional statement, which may or may not be made, about the proof," and page 337: "There is a genuine connexion between the induction that only argues by analogy and the linear inference that can only use syllogism. The connexion is that induction which only proceeds by likeness and difference can at most establish laws of the mere conjunction and disjunction of attributes, and no use can be made of such laws except as majors for syllogisms. But there are other kinds of law, and these are reached by another kind of induction, and can be used as premises for another kind of deduction." Compare Green, *Works*, II., 288: "From the connexion of any set of phenomena as merely resembling, no science results; once connect them as constituents of a quantity, and we have the beginnings of science".

I have to show how I recognise, and explain on my principle, the sort of Induction indicated in the last sentence quoted from Prof. Broad.

Of course I see that general laws are "established," "borrowed," and "applied," in science. The question is as to the nature of the laws and in what sense they are "borrowed". This seems to me to be excellently stated in the passages from Profs. Broad and Green. As I understand, the scientific law represents a certain stage in a process of intellectual work, an analytic synthesis or synthetic analysis of a certain province of phenomena, which embodies the connexion between the variations of their factors in what is called a law. The warrant of the law is, surely, simply that it "saves the appearances," in harmony, of course, with any further scientific principles which are relevant to the problem. It is itself an insight won by analysing the phenomena as an interdependent system, and it is accepted because it is the only way, or the most successful way, of ordering those phenomena. Of course I know that in this "success" there is much that is relative, and it is even denied to be capable of being absolute. I only say that *if* you take your law as true you take it on this principle.

Now when such a law is "borrowed" and "applied" of course I see that the mind which applies it does not unite the whole analytic-synthetic insight and survey in which it originated with the particulars of the case with which he is occupied. But am I wrong in saying that he takes it up, as a basis demanding in itself an analytic or synthetic intellectual apprehension, and further par-

ticularised by a continuation of the same analytic-synthetic movement by which it was formed? The movement surely is the same, and the criterion is the same. The theory is to be what you must have if you are going to "save the appearances". It must stand, or the appearances and confirmatory principles must go. We must remember that as I said above we are putting an ideal case, that of denying without a ground. In practice, I presume, you only deny upon a positive ground, and only assert the principle so far as to remove the special ground of your denial. That implies our criterion, but does not let it take its ultimate form. This is surely because, where the ultimate form could apply, no one ever thinks of denying.

The borrowed premise of science, then, does not exclude a procedure of extending insight into necessary relation within a system when it comes to be applied. No insight, I think, can ever be strictly particular; its universality follows that of the conditions. And surely I am justified in insisting on it as a fact that this insight varies enormously in degree. This is both really in favour of my view, and superficially against it. It is really for it, because it recognises the insight or systematic apprehension on which I insist, as an essential feature in the application of scientific principle, which always figures in the work of application, and may extend into the structure of the principle itself, with very great advantage. It is superficially against it, because, where the insight falls very low, the process takes on almost the appearance of inference from mere resemblance. I am quite aware of this point and have often insisted on it.[1] Take the case of the schoolboy's rule of thumb for the rule of three. "Multiply the second and third together and divide by the first." If only he knew which should be the second and third, and which should be the first! If he had a slight insight into the nature of proportion, I suppose he would know this. But at least he has suggested to him the formula of an analysis of the problem. I submit that whenever the law represents not a repetition of conjunctions but a connexion of differents, both it and its application depend on the principle of insight into intrinsic connexions, which of course may be to any extent mediated by processes of analysis and synthesis which *are* the self-development of thought. And when this is so, and consequently the method employed in framing the law has been something analogous to that of concomitant variations,[2] I think the distinction from inferences resting on resemblances remains clear, even where the law is used pretty nearly as a rule of thumb, *i.e.*, is almost simply "borrowed" and "applied".

I cannot believe that even in the more empirical sciences this distinction can be explained away, and simple enumeration re-established as the root of these sciences, as Mill made it the root of all. The inherent method of thought seems to me to forbid it, and

[1] See analysis of the use of the vernier, *Knowledge and Reality*, p. 317ff.
[2] *Cf.* MIND, 115, p. 337, and Green, *Works*, II., 285 n., quoting Deschanel.

to show the features which exclude it to be universal. "To ask whether A is really A, *is*[1] to ask whether A is related to other possible experiences B, C, as I suppose it to be." "One cannot in strictness speak of testing a thing by itself."[2] "Every question I ask about the experience A expects for its answer other experiences B, C, D."[3] All the laws of thought, it seems to us, are exemplifications of this character, and thought cannot work otherwise. "But in linear Induction it does work otherwise." I think not. The true uses of repetition in Induction have often been explained,[4] and it is not necessary to return to them here.

[1] My italics.
[2] Nettleship, *Lectures on Logic*, p. 181.
[3] *Ibid.*, p. 182.
[4] See *e.g.*, my *Logic*, ii., p. 135.

BERNARD BOSANQUET.

THE MEANING OF 'SELF'.

These observations on Dr. Strong's Discussion in the January Number do not spring, assuredly, from any desire contentiously to prolong a somewhat involved controversy. But he has made it so plain that he still thinks that the Self is caught in the dilemma that it must be either an object (or a congeries of objects) or nothing at all, and he is still so unwilling to entertain any alternative which would extricate the Self that I will make one more appeal to philosophers to reconsider the *method* which conducts to this dilemma. For I know that Dr. Strong's attitude is not peculiar to himself. It is exhibited, even more decidedly, by Mr. Russell's *Analysis of Mind*, and although Hume and Mill confessed the bankruptcy of sensationalism on this point long ago, the situation apparently distresses Mr. Russell as little as Dr. Strong. Yet it ought not to be impossible to convince them that their psychological method, plausible as it is in many respects, definitely breaks down over the crucial instance of the Self.

Before, however, endeavouring to show that this 'analysis,' after professing to dispense with the Self, continually reintroduces it, I must guard myself against an assumption which not only prejudices Dr. Strong against all I can say but blinds him to the defects of his own theory. The assumption is that there are only two conceivable alternatives, so that whatever proves the one untenable *ipso facto* establishes the other. The soul is *either* a product of 'sensations,' *or* a metaphysical 'substance'. Now this is neither what I believe, nor what I believe to be true. Accordingly, when Dr. Strong thinks that after rejecting his account there is nothing open to me but a relapse into a 'spiritualistic' psychology with the old metaphysical notion of the self as a simple soul-substance, and that therefore I must be trying to make 'consciousness' into "a pigment or menstruum" and "be drifting back from the strictly empirical psychology of James to something like a spiritualistic psychology" (p. 69) an emphatic protest is in order. I have *never* believed in 'consciousness' in the sense condemned by James, and have never held it to be more than an abstraction, or piece of philosophic jargon, devised to conceal the personal character of psychic facts by those who had not the courage to confess it. I hold, on the contrary, that there is no such *thing* as consciousness. The category of 'thing' does not apply to the living. But there are *persons*, and conscious persons, and it is worth considering whether these are not a better clue than 'things' to the 'essence' of reality. The old metaphysical soul, therefore, being a 'thing'—

and a futile thing to boot—is quite as objectionable in psychology as any concretion of 'sense-data'. And I object to it no less, and for the same reason, namely, that it too cannot be a self (such as we all are), and it too is incapable of doing what every self habitually and continually does. Neither the one nor the other can both contain, and 'own,' and *be*, its personal experiences. This incapacity I trace to a common root in the psychological method which insists on treating the Self as if it were an 'object' for an (external) observer. This treatment seems to be a manifest fiction; but this would not discredit it if it were not plain that in this case it breaks down. That it *does* break down is what I wish to impress on Dr. Strong and Mr. Russell. I am less concerned to show that there is an alternative to the psychological method which breaks down; but if Dr. Strong is willing to envisage this alternative, it is clear that he will have most carefully to beware of treating the Self as an 'object' or a *compositum* of 'sense-data,' and that if he will look for such things, with *this* method, he will find them as little as he found 'activities' and 'acts' with his present method.

It may now be possible to illustrate the contention that Dr. Strong's analysis of the Self is not adequate, after disposing of a mutual misunderstanding. It appears from the opening paragraph of Dr. Strong's paper that the 'Self' equated with a 'rush of blood and tension in the head' was not *his*. Nor, certainly, is it *mine*. It was merely *his* notion of what *my* 'self' must be, on the assumption that he had understood it. But as this was not the case, it had better be dropped by common consent.

Dr. Strong's authentic 'self' is, it seems, "*all experience de-objectified*". What this means, and how it happens, is not quite easy to grasp; but it is clear that as 'de-objectify' is a transitive verb we ought to be informed *who* does the 'de-objectifying'. The process, however, seems to start from "a sensuous state used as the sign of an object" which "conveys the object only in the form of a 'meaning' and does so because we adopt the motor attitude appropriate to the object". Again we note that 'we' is the plural of 'I'; but we are not told *who* 'uses' the sensuous state, and who are the 'we' that 'adopt' the attitude; but the whole description seems to savour of personal activity and to imply the 'self' which is being explained away.

We next learn that the starting-point of this explanation, the 'sensuous state,' is not a fact of experience but a figment of *ex post facto* theorising. For "at the moment of perception, being intent on this meaning, we cannot be aware of the sensuous state". Again who are 'we'? And does not 'intent' connote activity?

Though, however, we can never directly be aware of the 'sensuous state,' we can *infer* it. "That it existed at that moment we learn in retrospection, when we consider that the meaning was brought before us only by the sensuous state used as a sign"; and so "the apparent existence of the object was really the existence of the sensuous state or 'I'".

Thus we are asked to believe that what at the moment of experience seemed an 'object' turns out to be, in retrospect, the very 'self'. Dr. Strong's inference has certainly transformed it strangely; but questions may arise both about the adequacy of the description and about the validity of the inference. The description seems inadequate because in 'the moment of perception' also there seemed to be a 'self' actively appropriating the 'objects' it intends, and *this* self at least can hardly have been one of the objects it is charged in retrospect with appropriating and converting to its own 'uses'. Moreover, in retrospecting also, there still seems to be a 'self' at work (the same or another?), and it is this that generates the paradoxical (and possibly mistaken) doctrine of the 'I' that ever knows and is never known. Thus at *both* moments there is found to be a 'self' that is *not* accounted for by Dr. Strong.

But even if we do not cavil at the description, need we pass the inference? If "the apparent existence of the object was really the existence of the 'I'," is not the reality of 'objects' radically impugned by our mature reflexion? Ought we not to infer that the 'I' creates the 'object'?

If Dr. Strong would draw this inference, he would certainly be acquitted of the charge of 'making the ego an illusion'. But what would then become of his realism, which seems to be dearer to him than his very 'self'? He would be accused of making the '*object*' an 'illusion,' and 'subjective idealism' is a charge philosophers appear to dread as much as politicians tremble at that of anti-democratic sentiments.

However it is clear that if the 'I' is allowed in this fashion to absorb all 'objects,' it must acquire in the process all the activity there is—which according to Hume is not much. But the difficulty will then be how Dr. Strong's egocentric psychology is reconcilable with his 'realistic' metaphysic. I have no doubt he has an answer, but it is not yet apparent to me.

On the other hand I cannot admit that Dr. Strong has explained what I call the 'personal' meaning. He thinks he has, because he has considered a case "in which *I* mean an object" (p. 70); but as shown above it is precisely the meaning of the 'I' and the *modus operandi* of its meaning function that are omitted in the transformation of apparent 'objects' into an 'I'.

Finally I may remark that the passage Dr. Strong quotes from James (p. 70), does not seem to me to be relevant to the point at issue. It illustrates, not the non-existence of transitive and active functions in the psychic process, but the meaning of pragmatic verification by '*leading*' or 'consequences'. Unlike Dr. Strong, James was never oblivious of the empirical fact that experiences are always *owned*, always 'belong' to some one, and did not imagine that he had 'analysed' the 'I': it is natural, however (though mistaken) for Dr. Strong, who recognises no owner, to claim the support of the passages he quotes, precisely because he sees no problem in the '*I* mean'. But James did, though he did not solve

it. And I incline to the belief that no solution of it is conceivable until we abandon the coherent system of fictions which tries to assimilate the method of psychology to that of physics, and to represent 'introspection' as a contemplation of observable 'objects,' rather than as the reflective return of an active being on his track.

F. C. S. SCHILLER.

UNIVERSALS AND ORDERS.

THE paper on 'The Nature of Universals and Propositions' that was read by Prof. Stout under the auspices of the British Academy[1] in December, 1921, has opened up a very important problem and has thrown much fresh light upon it; and, as it seems to me to be closely connected with what I have sought to urge with regard to the conception of Order,[2] I should like to be allowed to offer some further observations on that subject.

Mr. Stout's main contention is that the qualities that belong to an individual object are themselves individual qualities; that, for instance, the redness and roundness of a ball are as definitely individual as the ball itself—as definitely distinct, that is to say, from any other redness and roundness. For this view he makes out a good case up to a certain point; but what I wish to indicate is that his thesis, so far as he succeeds in establishing it, is simply an application of the Hegelian doctrine of the concreteness of the true universal or notion, which is also what I have endeavoured to bring out by means of the conception of order. To Hegel's own statements on the subject it is perhaps better not to refer; for the technicalities that he uses are of a kind that does not readily commend itself to English readers. But Lotze set forth in simpler language what I take to be the main point. All that he says in Book I., ch. i., of his *Logic* is deserving of careful attention; but it may suffice to refer to two passages, in which he distinguishes between the abstract universal and the 'true' universal which is concrete. His statements do not appear to have made as much impression as they ought on English readers.

'Abstraction,' he says (§ 23), 'is the name given to the method by which the universal is found, that method being, we are told, to leave out what is different in the particular instances compared and to add together that which they possess in common. If we look at the actual procedure of thought, we do not find this account confirmed. Gold, silver, copper, and lead differ in colour, brilliancy, weight and density; but their universal, which we call metal, is not found upon comparison by simply leaving out these differences without compensation. Clearly it is no sufficient definition of metal to say negatively, it is neither red nor yellow nor white nor grey; the affirmation, that it has at any rate some colour, is equally indispensable; it has not indeed this or that

[1] Published by the Oxford University Press.

[2] MIND, vol. xxii., N.S., No. 86, and *Elements of Constructive Philosophy*, Book I., ch. vii., Book II., ch. v., Book III., ch. iv.

specific weight, this or that degree of brilliancy, but the idea of it would either cease to have any meaning at all, or would certainly not be the idea of metal, if it contained no thought whatever of weight, brilliancy, and hardness. Assuredly we do not get the universal image of animal by comparison, if we leave out of our minds entirely the facts of reproduction, self-movement, and respiration, on the ground that some animals produce their young alive, others by eggs, others multiply by division, that some again breathe through lungs, others through gills, others through the skin, and that lastly many move on legs, others fly, while some are incapable of any locomotion. On the contrary, the most essential thing of all, that which makes every animal an animal, is that it has some mode or other of reproduction, of motion, and of respiration. In all these cases, then, the universal is produced, not by simply leaving out the different marks p^1 and p^2, q^1 and q^2, which occur in the individuals compared, but by substituting for those left out the universal marks P and Q, of which p^1p^2 and q^1q^2 are particular kinds.' Here the objection to the abstract universal is clearly brought out. But, in fact, it is hardly necessary to refer to Lotze for this. Berkeley's criticism [1] of Locke's doctrine of the formation of 'abstract general ideas' might have sufficed for the purpose. Lotze proceeds, however, a little later, to give a definite account of the concrete universal.

'Of the true universal,' he says (§ 31), 'which contains the rule for the entire formation of its species, it may rather be said that its content is always precisely as rich, the sum of its marks precisely as great, as that of its species themselves; only that the universal concept, the genus, contains a number of marks in a merely indefinite and even universal form; these are represented in the species by definite values or particular characterisations, and finally in the singular concept all indefiniteness vanishes, and each universal mark of the genus is replaced by one fully determined in quantity, individuality, and relation to others.'

Here, I think, we come to the exact point that Mr. Stout was insisting on in his paper. Let us see how all this can be applied to the particular instance of a red ball. The ball has colour, shape, size, some degree of hardness, some position in space-time, and no doubt a number of other characteristics which it is not necessary to notice. We may begin with colour.

Colour is a concrete universal. It does not mean something that is *not* red, blue, green or yellow, but rather something that comprehends all these. When they are placed in their natural relations to one another, as in the spectrum, they constitute what I call an order. In the ball to which we are referring one member of that order, red, has been singled out. Red, however, is itself a universal, and includes a number of distinct shades, which also can be arranged in certain orders, according to degrees of intensity, saturation, and other characteristics. In the ball, viewed at any

[1] *Principles of Human Knowledge*, Introduction, §§ 11 *sqq.*

particular time, a definite selection has been made in all these respects. It is not merely red, but some quite definite red. But this is still a universal. Any number of other balls and of other coloured objects might have just that precise shade of red.

Similar remarks may be made about the other qualities in the ball. Its roundness is a mode of shape, which could be placed within a definite order of shapes, ranging from the perfect globe through a countless number of deviations from that. The ball is probably not a quite perfect sphere, but we may suppose that it is approximately perfect. Even that particular approximation, however, is still a universal. An indefinite number of other bodies might have just the same approximation. It might, for instance, be exactly the same approximation as that which is found in the sun or in one of the planets. And the same is evidently true of its size and its degree of hardness. Its position in space and its position in time, taken separately, may also be shared by an indefinite number of other objects, but not its position in space-time. Its position in space-time would seem to be a characteristic that belongs only to itself as individual. Hence, we might even say that space-time is pre-eminently the individualising function in existence.

Looking at the matter in this way, I am led to the conclusion that Mr. Stout is in error in believing, as he says (p. 3), that 'a character characterising a concrete thing or individual is as particular as the thing or individual which it characterises'. Not only each particular quality of the ball, but even the particular combination of these qualities, might belong to an indefinite number of other balls. The only quality that is its unique possession is its position in space-time and whatever follows from that in its relations to other bodies, in the way of pressure, attraction, and the like. Now, if this is the case, the application that Mr. Stout makes of his main contention would seem to be only partly correct. It will be well to give the application in his own words.

'At this point,' he says (p. 10), 'we are confronted by the ultimate question, What is the distinction between a substance on the one hand, and its qualities and relations on the other? To me only one view appears tenable. A substance is a complex unity of an altogether ultimate and peculiar type, including within it all characters truly predicable of it. To be truly predicable of it is to be contained within it. The distinctive unity of such a complex is *concreteness*. Characters of concrete things are particular, but not concrete. What is concrete is the whole in which they coalesce with each other. This view of substance as a complex unity, when coupled with the doctrine that qualities and relations are universals, leads naturally, if not inevitably, to the denial of an ultimate plurality of substances. This is the line of thought which we find in Mr. Bradley and Mr. Bosanquet. Reality must be concrete and individual; the individual cannot be constituted by any mere union of universals. Yet if we inquire what so-called finite individuals

are, we find nothing but qualities and relations, which, as such, are taken to be universals. Hence, the true individual transcends the grasp of finite thought. There can be only one substance, the absolute and individual whole of being; all finite existences including finite selves are merely adjectives of this. If taken as ultimate they are mere appearances.'

Now, I certainly think that Mr. Stout is right in believing that the view taken by Mr. Bradley and Mr. Bosanquet leads to pure singularism; and, it is equally true that his own view leads to pure pluralism. But I see no real ground for following either line of thought. Between singularism and pluralism there is what I call cosmism, which follows from the conception of concrete universals or orders; and the reading of Mr. Stout's interesting paper has only served to confirm me in my adherence to that third alternative. Indeed, I must confess that it surprises me not a little that so many writers in this country who have been considerably influenced by Hegel seem to have failed so completely to see the inadequacy of the conception of substance. I should have thought that Hegel's criticism of Spinoza—or even Berkeley's criticism of the conception of material substance—should have sufficed to give pause to the free use of that particular category. There seems to be no particular harm in calling a piece of coal a substance and inquiring what qualities belong to it; but surely it would be absurd to call either Mr. Bradley or Mr. Bosanquet or Mr. Stout a substance. I should have supposed that they were persons; and, though it is true that persons may be said to have certain qualities, such as intelligence (which, no doubt, those particular persons have in a very high degree), yet, on the whole, what have to be ascribed to persons are not qualities, but modes of action—modes, in particular, of thinking, feeling, and willing. Perhaps it is true that the qualities that are ascribed to a billiard ball or a piece of coal are also at bottom modes of action;[1] but, at any rate, the categories of substance and attribute may be used with reference to such bodies without doing them much injustice; whereas it becomes ludicrous to apply them to persons. The absurdity is well brought out in the passage that Mr. Stout quotes from Mr. McTaggart's recent book (p. 7)—'A sneeze would not usually be called a substance, nor would a party at whist, nor all red-haired archdeacons. But each of these complies with our definition, since each of them has qualities and each is related without being a quality or relation.' It seems clear that a definition that leads to such a conclusion must be a faulty one. A sneeze would seem to be a complex bodily movement of a living being; a party at whist is a temporary mode of association; red-haired archdeacons are a group based on an accidental characteristic. If we have not enough categories to characterise such objects, the fault would appear to lie in our list of categories. To try to bring everything under substance and its correlatives is only to create wholly unnecessary absurdities.

[1] Ultimately, I suppose, everything is what it does.

Now, it seems to me that this has to some extent been done, not only by Mr. Bradley and Mr. Bosanquet, but also by Mr. Stout himself. Mr. Stout, seeking to avoid the Scylla of singularism, falls into the Charybdis of pluralism. Cosmism, as I believe, enables us to avoid both these errors. But I must now try to explain how this is done.

The conception of Order, or of the concrete universal, when applied to the Universe as a whole, means that it is not to be thought of either as a mere unity or as a mere manifold, but as a system containing a many in one. Now, when a statement of this kind is made, it is sometimes said that practically all philosophers are, in this sense, cosmists; but I am afraid that that is not the case; or, at least, most philosophers lay so much emphasis either on the unity or on the manifoldness of the world that the other aspect is almost completely ignored. For Mr. Russell reality is a multiverse, just as for Parmenides it was an unchangeable unity. Most others, no doubt, try to give some degree of recognition to the aspect that, on the whole, they exclude. Indeed, even Parmenides and Mr. Russell may be said to have done this; but, in so far as they do it, they appear to be inconsistent. No one who attempts to work out a coherent philosophy can altogether ignore either the aspect of unity or that of multiplicity, but nearly every one tends to stress one side or the other in such a way as to make the complementary side appear illusory. Even Plato may be held to have exaggerated the aspect of unity: even Aristotle may be held to have exaggerated that of multiplicity. But Aristotle at least in ancient times and Hegel in modern times may be taken as among the best representatives of what I understand by cosmism; and, lest it should be supposed that I wish to confine the term to writers with whose general views I am in agreement, I may add that I should regard Mr. Alexander's system, with which I do not agree, as being also a good example of what is meant. A few remarks about that system may help to make the meaning clear.

With the exception of Parmenides and of the most exclusively monistic Vedantists, Spinoza is, I should suppose, the most perfect type of a singularistic philosopher. He is so, as Hegel noted, largely because he took substance as his fundamental conception. Now, Mr. Alexander reckons himself to be a follower of Spinoza; and, in his very interesting lecture on *Spinoza and Time*, he has explained how he managed to escape from the Spinozistic singularism. I understand the explanation to be that he made his escape by substituting space-time for space pure and simple. The Cartesians in general could find no real place for time. Descartes himself split it up into separate moments, and practically regarded each distinct moment of existence as an independent universe—the only connexion between the innumerable universes lying in the fact that they are all created by God. Spinoza appears to have adopted the simpler plan of ignoring time altogether. At any rate, it does not count for anything in his system. Mr. Alexander, on

the other hand, by recognising time as one of the dimensions of the universe, is able to assign reality to the changing modes of experience as well as to the formal unity within which these modes are comprehended. He thus becomes in the fullest sense a cosmist, having both a real unity and a real multiplicity; and in this way his system must be ranked among the most complete that the wit of man has ever devised. Its only weakness as a system, so far as I can see, lies in the fact that there does not appear to be any real connexion between the unity and the multiplicity. Each side has simply to be assumed. The formal unity of space-time may, no doubt, be said to demand the distinctions that are supplied by the separate modes; but there seems to be nothing in the simple nature of space-time as such that could account for the special determinations that fall within it. Carlyle remarked that the philosophical problem of the universe is like that which was propounded with reference to the apple-dumpling—how the apples got in; and this certainly seems to be the chief problem that remains in Mr. Alexander's scheme. If the order of it could be reversed—if it could be seen that the apples were essentially prior to their covering—the difficulty would perhaps disappear. The Being that comes in at the end of Mr. Alexander's scheme of evolution might perhaps serve to explain the time-process, if that Being could be regarded as its presupposition as well as its goal. But the system would then bear more resemblance to that of Hegel than to that of Spinoza. Yet it would not thereby lose any of the interest that lies in the special details with which Mr. Alexander has enriched it. However, I refer to this only as an illustration of what is meant by cosmism. What Plato called in the *Timæus* the self-existent living being—the *αὐτὸ ὅ ἔστι ζῷον*—which does not seem to me to differ essentially from what he called in the *Republic* and elsewhere the Form of Good, may be regarded as the great concrete Universal within which all the lesser Orders find their place; and that may, as it seems to me, be regarded as the presupposition of all particular existences, as well as the goal to which evolution tends. Space-time is undoubtedly an important Order: it is the Order, as I have already indicated, through which finite individuality is made possible. But it does not by itself account for the qualitative Orders of colour and other sensible determinations that find their place within the spatio-temporal system. For this we have need of an Order of a more concrete kind. Plato, by speaking of the Form of Good, suggests that the Order of Value is that in which the ultimate explanation is to be sought; and, by speaking of the self-existent living being, he indicates the general nature of the reality that possesses supreme value. With both these suggestions I should be disposed to agree; and I think their significance can only be properly appreciated through the full recognition of the concreteness of the true Universal.

J. S. MACKENZIE.

PLATO AND THE POETS.

It has often been asserted that Plato was hostile to all poetry, that he wished to banish poets and artists altogether from his model State. This view of his doctrine has come down to us from ancient times, at least from the fifth century of our era. I find it in Proclus and in St. Augustine; it is assumed in the literary controversies of the seventeenth century, and has been repeated again and again by representative scholars of our own time down to Prof. Wilamowitz-Möllendorff's great work upon Plato published two years ago. Such a doctrine from a writer who has been universally acclaimed as the artists' philosopher *κατ' ἐξοχήν*; who clinches almost every argument with an appeal to the Muses; who has left us in the various "myths" scattered through his dialogues some of the most impressive prose-poems that exist in any language, would seem, to say the least, a little perplexing. It could only be accepted as his deliberate teaching if it were found definitely stated in express terms, at different epochs, and especially if it could be brought into harmony with the general trend of his thought as exhibited in his works taken as a whole.

I propose in the following to enquire how far the view that poets are to be excluded from the republic of Kallipolis is justified by an examination of some of the principal passages which refer to the subject. They are mainly in Books III. and X. of the *Republic*.

Plato begins the third book by an enumeration—continued from Book II.—of passages from Homer, which he says are neither moral nor true (*οὔθ' ὅσια οὔτ' ἀληθῆ*), and corrupt those who hear them. Such, Socrates says, ought to be excised. Observe that there is not a word about forbidding all poetry, but only of expurgating certain passages which tend to degrade the minds of the hearers.

He now passes to the form (*λέξις*, 392 C *sqq.*), and insists very strongly on a distinction between *διήγησις* (narrative) and *μίμησις* (imitation). The distinction seems to be fundamental in Plato's mind, but it is not at all clear what he means.[1] Sometimes in the sequel he seems to imply that all art is *μίμησις*; more often he draws a sharp distinction between imitation and other art. He here illustrates it from the opening episode of the *Iliad*, where Homer relates the visit of Chryses to Agamemnon to recover his daughter, continuing his speech in the first person; that is, he gives the very words of Chryses, thus as it were himself assuming the character of the person about whom the story is told. This Plato calls "imitation," and as he expressly connects it with tragedy

[1] That he does not use the term in the wider sense of Aristotle's *Poetics* is abundantly clear. I shall return to this point later on.

and comedy we may suppose that by imitation he means *dramatic* poetry; he would like to close the theatres, and so Adeimantus understands him. But, he says, there is more than this. He continues (394 D):—

> What I meant to say was that we must come to some agreement as to whether the poets should be allowed to tell their story by "imitation," or whether only some things should be imitated, others not, and which in each case; or whether they should not imitate at all.

He does not want to close the theatres, but to regulate them. This question he does not deal with at once, but passes on to another, whether the *Guardians* should be imitators, deciding it in the negative, on the rather curious ground that no one can successfully imitate many things; but he again qualifies it (395 C):—

> But if they do imitate let them from childhood imitate suitable things—the brave, the wise, the holy, the free, and all such; what is unfree, or otherwise base, that they should not do, neither should they be skilled in imitating it, lest from the semblance they pass to the reality.

The difference is not between imitation and narration, but as before, between worthy and unworthy subjects. Similarly in 396 B, C:—

> There is a certain kind of speech which a fair and good man will naturally choose for his narrative when he has anything to say, and another sort, quite unlike it, which a man of an opposite nature and education will affect. . . . It seems to me that a decent person, when he comes to tell about the deeds or sayings of a good man, will wish to put himself in his place. The imitation of a good man, acting with firmness and wisdom, is not a thing to be ashamed of . . . only when he comes upon anything unworthy of himself he will not care seriously to adopt the rôle of one who is his inferior, except just as a passing incident.

Here the distinction at first drawn between διήγησις and μίμησις is dropped altogether; what he wishes to exclude is a debased sort of art. Then follows the famous passage, 398 A:—

> Should a man so clever that he can personate and imitate everything present himself in our state and wish to exhibit his accomplishments, we should make obeisance to him as a holy and wonderful and pleasant individual, but should inform him that there is no such person in our state, nor were it right that there should be. We will anoint his head with perfume, crown him with wool, and send him off to some other city. For ourselves, for our own use, we will engage a more austere and less pleasing poet and story-teller; one who shall imitate the style of things fitting and proper, and shall deliver his message after the fashion which we approved in the beginning, when we were endeavouring to train the military officers.

The person expelled is not any poet, not even the "imitator" as such, but one of those mountebank artists who pander to the

popular taste for low entertainment, one who can imitate anything, barking dogs, crowing cocks, and the like (*cf.*, 397 A). This is confirmed a little later, where Socrates says in the most emphatic language that artists who follow what is beautiful and becoming are to be sought after (399 A-C; 401 C-D).

It would be tedious to multiply passages; there are many more, in the *Laws* and elsewhere, of which I will quote a selection at the end. I do not wish to lay stress upon such sayings as that in *Lysis*, 214 A, where he calls the poets our fathers and leaders in wisdom; or in the *Symposium*, 209, where he couples the names of Homer and Hesiod with those of Solon and Lycurgus as begetters of φρόνησις and all other virtue; because they may have been written before his thought was fully matured. Still they are in keeping with the rest, and with the *Laws*, which represents his latest and most advanced teaching, where he says (801 A) that the sort of poetry which is of good omen should be found everywhere, and with *Republic*, 401 D, where he declares that for education the most powerful nourishment is to be found in occupation with the Muses (κυριωτάτη ἐν μουσικῇ τροφή). It is impossible in the face of such a pronouncement to maintain that he wished to banish all art.

The tenth book opens with a categorical rejection of all imitation:

Τὸ μηδαμῇ παραδέχεσθαι αὐτῆς ὅση μιμητική.

We will accept none of it that is imitative.

Nothing could be plainer, and Socrates declares that it is the thing which pleases him best of all the institutions of Kallipolis. A little later he adds in the same vein (607 B):

εἰκότως ἄρα τότε αὐτὴν ἐκ τῆς πόλεως ἀπεστέλλομεν τοιαύτην οὖσαν.

We were justified in sending it (poetry) out of the State, its nature being of such a kind.

Isolated passages of this kind occur in the dialogues, and are liable on hasty reading to be misunderstood; but they will not bear examination; they are always qualified in some way, in this instance by the words ὅση μιμητική in the first quotation, and its equivalent τοιαύτην οὖσαν in the second. It all turns therefore on the meaning of μίμησις, of which he now gives a new explanation, in accordance with his theory of Ideas. There are, he says, three stages: Idea—particular object, or imitation of the Idea—artistic representation of the particular, an imitation of an imitation, so that poets are in the third remove from the truth (597 E). He then goes over much of the old ground; the rest of this part of the dialogue is entirely devoted to Homer, to showing that he ought not to be accepted as the educator of Hellas (606 E-607 A).

> Therefore, I said, O Glaucon, when you hear people lauding Homer; when he is called the educator of Hellas, a guide who may with advantage be accepted for every department of human activity, by whose precepts everyone should regulate his life—when you hear them talk like this, by all means welcome them kindly; they are excellent people from their point of view, and we will agree that Homer is

> a most poetical person, the first of tragedians. But they must be told that the only poems which we can accept are hymns to the gods and praises of good men. Once you admit the voluptuous Muse, whether in tones or in words, your city will be ruled by considerations of pleasure and pain, not by the standards which have always been approved as the best, those of law and reason.

When we remember on the one hand the extravagant claims that were put forward on behalf of Homer, how he was regarded, not only as a great religious teacher, but as an inspired source of all knowledge, and on the other the monstrous immorality and æsthetic repulsiveness of some of the conduct which he ascribes to the gods of Olympus, especially to the supreme deity, the father of gods and men, it might occur to a modern reader that a protest on that score from a leader of Athenian thought was not only natural but very necessary. It is not a case of overstrained Puritanism. Much of the *Iliad* must have shocked a pious Athenian very much as we should be shocked by a poet who should make comic songs on our sacred Scriptures. It is Homer's irresponsible flippancy that has roused Plato's indignation and provoked his invective. The reservation which he makes of hymns to the gods and praises of good men is of course capable of very wide interpretation; it might be understood to include almost anything—even the *Iliad* and the *Odyssey*.

That Plato had a standing quarrel with the poets in vogue in his day I do not of course wish to deny. He displays considerable animus, and sometimes his language towards them is very harsh. We must distinguish between the Idea of poetry αὐτὸ καθ'αὐτό and its imperfect representation in the poetry of literature. Plato's polemic is directed against the poets as he knew them in Athens in the fourth century, not against poetry itself. It is not the Muses that he wishes to banish, but the poets who insult them. His own word for a person sunk in a state of degraded ignorance is ἄμουσος —deserted of the Muses.

I return to the question of μίμησις and Plato's assignment of the artist to the third remove from truth. Schopenhauer in the third book of his *Welt als Wille und Vorstellung* has shown that what the artist really imitates is directly the Idea, without the intervention of the particular. The same seems implied in Plato's *Republic*, V., 472 D: οἶει ἂν οὖν . . . and again in VI., 484 C: ὥσπερ γραφεῖς εἰς τὸ ἀληθέστατον ἀποβλέποντες. Perhaps this will throw some light upon what he means by imitation. He must mean what is called "realism" in art, *i.e.*, minute, uncritical, vulgar accuracy in depicting the obvious external features of an object, and thereby obscuring its organic unity as an Idea. I think this distinction must have been in Beethoven's mind when he wrote over the Pastoral Symphony: "Mehr Empfindung als Malerei". That Plato had in view the popular poets, artists, actors, etc., of his own day seems indicated by *Republic*, III., 395 D-397 B, where

he describes very vividly some of the tricks which were practised on the Athenian stage—imitation of scolding women, crowing cocks, bleating sheep, creaking wheels, drunkards and the like. In *Laws*, 700, he contrasts the songs of his day with the good old songs and dances of a former age, and traces the gradual degradation of public taste. Would it be fanciful to suppose that the moral and nervous strain of the great war of ancient Hellas was followed by an exhaustion showing itself in the vulgarisation of artistic taste in public representations not unlike that which we see in our own day?

We must not unduly press consistency upon Plato. So long as we hang upon the words it must be admitted that his language is sufficiently obscure. Two things, however, stand out very clearly: (1) That the only poetry to be forbidden is that which has a corrupting tendency; that poets are not to be allowed to mix poison with their sweets. On the contrary, all that ennobles, all that tends to make men *ἀνδρείους, σώφρονας, ὁσίους, ἐλευθέρους* should be welcomed and encouraged. (2) That Homer is not to be accepted as an infallible guide on every conceivable subject.

Plato's doctrine is that of Ruskin and of Richard Wagner—I believe of all who have pondered much upon art—that the purpose of art is didactic; that poetry is not a light diversion for leisure moments, but a means of drawing the soul upwards to the realisation of the *αὐτὸ ἀγαθόν*. It is opposed to the feebler doctrine of "art for art's sake".

GEO. AINSLIE HIGHT.

OXFORD,
16*th November*, 1921.

I conclude with an enumeration of some of the more important passages in the dialogues which refer to our subject:—

On the general question of poetry and art:—

Republic, II., 379 C, *sqq.*; III., 386 A-402 A; X., 595 A; 603 A-608 A. *Laws*, II., 654 C; III., 682 A; 700-701; IV., 719 B, C; VII., 799; 801 A-E; 810 E; 816 E-817 D; XII., 967 C, D. *Apology*, 22 A-C; 41 A. *Lysis*, 214 A. *Symposium*, 209 A, D. *Gorgias*, 501 E-502 E. *Theaetetus*, 194 E (*ὁ πάντα σοφὸς ποιητής*—perhaps ironical). *Sophist*, 266 D; 268 C. *Phædrus*, 245 A; 278 B, C.

On μίμησις:—

Republic, III, 392 D-397 D; X., 595 A-605 C; 606 E-607 A. *Sophist*, 236 C; 267 A, B.

On Homer:—

Republic, II., 379 C, *sqq.*; III., 386 A, *sqq.*; X., 595 B; 599 C-600 E; 607 A. *Ion*.

On the character of popular entertainment in Athens:—

Republic, III., 395 D-397 B. *Laws*, III., 700 A-701 A; VII., 789 B, C.

ON CERTAIN METHODOLOGICAL ASPECTS OF THE THEORY OF RELATIVITY.

THERE are many aspects of the Theory of Relativity which involve problems until lately the exclusive property of Philosophy. Chief among these is the problem of Space and Time. In the theory these conceptions are given a definite status. There are now various different views of the characteristics of Space, held by different writers on Relativity; and it is a very satisfactory sign of the vigour of modern physics that such different systems as those of Einstein, Weyl, and Eddington should be elaborated. The only way of deciding between them will be by means of experimental tests; but at present no experimental test appears to be available to test the theory of Weyl though it is not impossible that some deduction might be made as to the shift of the lines in the spectrum of the sun or perhaps as to the size of the universe. But in spite of the fact that the views of these writers differ and there seems to be no way of deciding between them at present, if we eliminate all the parts of the theory about which there is not agreement, there is still something of fundamental importance in their treatment of the notion of Space. In the language of modern logic, they all alike use "Space" as a description.[1] Space in the theory of Relativity is a constructed entity.

To say that space is a description involves many consequences. No description can ever be used as a proper name. We see two particular spots of colour and we say "This is darker than that". There is in some sense, a direct relation between the symbol "This" and one of the spots of colour. Whatever this characteristic may be in virtue of which "This" is in direct relation to the thing in the External World to which it refers, it is absent in the case of the symbol for space. There is nothing in the External World to which we can point as being represented by the symbol. And this property of the concept which makes it a description involves a further consequence. Any proposition in which the term occurs is not in its logically simplest terms. It can be analysed further. And we may easily see that the analysis of such a proposition will disclose some propositional function.

We may take a simple example to make our meaning plain. Suppose we are contrasting the heights of two buildings. If instead of saying with a wave of the hands "This is loftier than that" we say "The building on my right is loftier than that," we are using a description. For there is no direct relation between the symbol

[1] The term "Description" is used in the sense explained by Whitehead and Russell in *Principia Mathematica*, vol. i.

"The building on my right" and anything in the outside world. The proposition can evidently be further analysed. We shall find it necessary to make use of the propositional function which may be written indifferently $f(xy)$ or $x\mathrm{R}y$.

$$f(xy) = x \text{ is to the right of } y = x\mathrm{R}y.$$

And the form of the proposition when it is further analysed is perhaps; "There is something which is to the right of myself and it is taller than that"; or if we write it in the symbolism of modern logic

$$(\exists x) \,.\, x\mathrm{R}a \,.\, x \text{ is loftier than } b$$
$$(\exists x) \,.\, f(x, a) \,.\, x \text{ is loftier than } b.$$

Or take the case of the proposition "Equiangular triangles are equilateral," the proposition asserts that the two properties of having equal sides and of having equal angles always occur together so that neither triangles with equal sides and unequal angles nor triangles with equal angles and unequal sides can exist. And we may write this proposition

$$(x) \,.\, f(x) \,.\, \supset \,.\, g(x)$$

(in which $f(x)$ means "the triangle x has equal angles" and $g(x)$ means "the triangle x has equal sides"), which may be read, "Whatever triangle x may be, if it has equal angles it has equal sides". Now the characteristics of the symbol "The building on my right," which result from the descriptive nature of the concept are exactly those involved in the treatment of space by the relativity writers. A propositional function is involved in the analysis of any proposition in which the term "space" occurs. And there is nothing whatever in the real world which we are directly representing in using the term. All propositions such as "Space is four-dimensional" or "Space is curved" when analysed disclose propositional functions, and will always be of the form, "Whatever $x_1, x_2, x_3, \ldots$ may be if $f(x_1x_2x_3 \ldots)$ then $g(x_1x_2x_3 \ldots)$". Now scientific developments fall into two classes. There is first the collecting of simple facts which attribute a certain character or combination of characters to individuals. These collections of facts together with the apparatus of probability reasoning allow inductions and generalisations to universal propositions which make assertions as to the co-existence of characters. The problems for logic in this domain are by no means easy, involving difficult questions of the validity of probability inference and the study of the notion of probability itself. But beyond the setting out of postulates obeyed by the relation between the propositions p and q in the assertion,

"p, given data h, is more probable than the proposition q given data k,"

the difficulties are for the most part in deciding what propositions about the real world shall be adopted, and not in the working out of the implications of specific propositions.

When we arrive at the second stage in scientific development, the position is entirely different and the difficulty involved in discovering implications of various propositions is often of a high

order. The problem here is indeed to discover the relations between the various concepts defined by propositional functions. And it is in this domain that the wonderful mathematical technique of the relativity writers has had such important results. The theory involved in Relativity is the relating of various hypotheses to one another. The achievement consists in establishing relations between various properties which enable us to see that certain hypotheses about space entail certain facts in the external world.

But the older view of space which is directly contradicted by the theory of relativity, appears plausible in one respect. It might perhaps be argued that we have direct perception of space, that we see at once that certain propositions are true, and that we in fact use diagrams with success in very many subjects, including, for example, biology, chemistry and physics. Now the significance of geometrical representation as it is made use of in non-mathematical problems has seldom been discussed and the fact that diagrams are in use in almost all the sciences as well as in mathematics appears, *prima facie*, to be related to the view that space is an entity which we can directly perceive. But I think that it is possible to deny this view of space and yet give a satisfactory explanation of the facts of geometrical and diagrammatical representation of the ideas of the various sciences.

During the last few decades there has been a complete revolution of geometrical ideas. Without this revolution, there could never have been a theory of relativity such as we have to-day. From being a collection of propositions about a few particular properties, Geometry has now developed into the science of Classification. As Whitehead has pointed out in his valuable tracts on Geometries,[1] the classification, by means of species and genera, of biological entities into mutually exclusive and exhaustive classes is a geometry equally with the classification of a finite number of balls into classes in various ways or the familiar Euclidean geometry of our youth.

If we adopt the modern view of geometry as the science of classification, we can yet allow that diagrams are of use in science without being involved in any contradiction. We may take a simple example to make the matter clear. If we take any geometry, there are in general a number of propositions which give the relation between properties which can easily be represented, as for example in the proposition, "Whatever α, β, γ may be if α is included in β and β is included in γ then α is included in γ". We can represent this by drawing a circle a inside another circle b, which is itself inside a third circle c. The relation of a, b and c on the paper gives a representation of the relation between any particular α, β and γ. But the proposition about any α, β, γ is not as it stands a geometrical proposition. The complete statement of the proposition would contain the postulates which determine the "behaviour" of the relation of inclusion. Different systems might very well have different

[1] *Cambridge Tracts in Mathematics*, Cambridge University Press.

postulates; but the effective results would uniformly be, "The properties $\phi_1\ \phi_2\ \phi_3\ \ldots$ carry with them the property ψ". In our telescoped proposition above, "If α is included in β and β in γ then α is included in γ whatever α, β, γ may be," we have a proposition to the effect that the properties—say $\phi_1\ \phi_2\ \ldots$ (by means of which the relation of inclusion is defined) carry with them the further property ψ of being transitive.[1] Now a different geometry of inclusion might have defined the notion by means of a set of properties $\phi_1\ \psi\ \ldots$ and then one proposition of the system would have been to the effect that the properties $\phi_1\ \psi\ \ldots$ carry with them the further property ϕ_2. Geometry, indeed, consists in the relating of properties *inter se* and is far removed from the fact that a circle *a* which is included in another circle *b* is also included in the circle *c* in which *b* lies. It is indeed as far removed from this fact as a biological fact that a certain mammal is a vertebrate is from the facts—whatever they may be—of the complete evolutionary theory of the co-existence of characters.

Now in propositions about space we are talking about sets of properties. By the name "mammal" we mean one set of properties, by the name "space" we mean a certain other specific set. And we may find it convenient to talk about the "space properties" of entities. The final scientific account of space will give propositions to the effect that some properties by means of which we define certain relations, necessarily entail certain other properties. When propositions of this form are established, it is generally convenient to manufacture a name for the properties in question so that propositions of this form would perhaps read, "space is curved" or "isosceles triangles have two equal angles" or "mammals are vertebrates". The technical development of propositions of this form has been dealt with by Russell and Whitehead in their *Principia Mathematica*. Now in considering the theory of Relativity I am concerned only with special sets of properties and the names for them. But the way in which "space" is used merely as a name for a bundle of properties is entirely parallel to the way in which, for example, "atoms" is merely a name for a bundle of properties. The logical status of these names is the same in all domains of scientific thought. The elementary stage in science comprising the collection of particular facts is a necessary prelude, but only a prelude to the more serious task of discovering various properties and grouping together sets of them under various names. Only in this stage are we concerned with space and the inter-relations of the various properties which are involved. It is, of course, of great importance that as many different forms of the hypotheses used as possible should be set out (and such propositions are, of course, again of the same form, and assert relations between properties) for the greater the number of these forms the

[1] A relation R is transitive when, if x has the relation R to y and y has the relation R to z, it follows that x has the relation R to z. Familiar examples are such relations as "is greater than," "is a descendant of".

greater the probability that suitable results will issue which can be tested by a direct appeal to applied science.

On this view it is evident that to ask, "What is Space" is not significant. We want to investigate what consequences can be deduced from the "space properties" of terms; we want to establish as many propositions as possible about the further properties which necessarily belong to any term possessing this set of properties. We want to trace the various alternative sets of space properties which are logically possible and to see how far results which are verifiable can be obtained. It will be very advantageous if propositions are discovered which make it possible to apply tests to decide between alternative theories. It will be of great importance, for example, if the further development of Weyl's theory yields some deduction as to the shift of the lines in the spectrum of the sun which would enable us to make a decision between it and other theories which yield other results as to the shift of the lines. But whichever part of the general investigation is being undertaken, not in the case of any one of them is it significant to ask, "What is Space". It is the properties and not the intrinsic nature of space which is the subject of investigation.

DOROTHY WRINCH.

EINSTEIN AND IDEALISM.

At a recent meeting of the Aristotelian Society, where Lord Haldane presided over a discussion on the Idealistic interpretation of Einstein's theory, Prof. Carr tried to show how his monadistic doctrine is the sole basis of the Theory of Relativity. Undoubtedly, Prof. Carr has opened a new and suggestive track to metaphysical speculation by means of the new physics; and one must admit that both the exposition and the defence of his thesis have been to his credit, although he was accepting too easily realistic arguments.

But I question very much whether the brilliant foliage of Einstein's theory has not hidden its very roots from the perspicacious eye of Prof. Carr, who gives too much weight to mere analogies. At the International Congress of Philosophy, held at Oxford in September, 1920, I maintained, as against the crude subjectivism of Prof. Eddington and the extreme absolutism of Dr. Ross, that the Theory of Relativity cannot be taken as a crucial system to decide between idealism and realism. This view is generally shared by scientists, who cannot profess a great sympathy for the doctrines of those philosophers who endeavour to drive science on to a certain ground which is not its own. I now go further, and hold that the Theory of Relativity is rather a thing prejudicial to idealism, at least as Prof. Carr proposes it.

I fail to see how the essence of the General Principle of Relativity is to introduce in the realm of physics, the very bane of the physicist, subjectivism. Prof. Carr thinks too much of Einstein's observers, when he says that Relativity shows that it is impossible to abstract from the mind of the observer and treat his observations as themselves absolute and independent in their objectivity. When Einstein speaks of observers, he does not mean at all particular active minds, as philosophy studies them, but mere beings belonging to different systems of reference moving relatively to one another. In other words, what makes the difference in the space and the time of two observers belonging to two different systems of reference moving relatively to one another, is not the particular mind of each observer, as Prof. Carr seems to think, but the very motion of their systems of reference, the mere fact that they are moving relatively to one another. I do not see any subjectivism here; on the contrary, it is an objective cause, *i.e.* motion, which makes all the difference in the formulation of the observations of the two observers. And this is so much true that, in the limiting case when the two observers belong to the same system of reference, their expressions of the same phenomenon, with all the

unfathomable difference of their minds, are identical. For them, space and time can be taken as two absolutes; time flows evenly for both of them; coincidence in space and simultaneity are continual experiences for them; their world-lines are Euclidian. The philosophical import of this limiting case has been overlooked, because its implications do not clash with the old physics. But in fact, it challenges idealism to explain how the laws of nature can be looked at in the same way by many observers having each, of course, his own particular mind, and belonging to the same system of reference.

It is not true, then, to say that the work of physical science is to co-ordinate the observations of observers, each of whom uses his own co-ordinates, and for whom there is no common measure. The object of physics is rather to present natural phenomena in such a way as to be understood by every particular mind. When Prof. Carr says then that there is no universe common to all observers and private to none, he seems to harbour at the back of his head the old Newtonian ideas of an absolute space and an absolute time. We have been accustomed, through heredity, to express our ideas with reference to an absolute space and an absolute time; and it is difficult to think with reference to a spatio-temporal universe, taken as an absolute whole. But that is what Relativity asks us to do when dealing with physical science. If each system of reference has its own space and its own time, the space-time considered as a whole, the absolute Universe, is a reality common to all observers, whatever be the relative motion of their system of reference. The enunciation itself of Einstein's General Principle of Relativity reflects that absolute reality, independent of the mind and even of the motion of the observers, absolute in its objectivity although relative in its expressions by various observers. "The laws of nature," says the principle, "remain unaltered whatever be the motion of the observers." What is the very implication of this principle? It means that there is an objective invariant, the reality of which does not depend on the mind, although its expression is affected by the motion of the observers, not the subjective activity of their minds. In fact, a natural phenomenon can be expressed by the same mind, either according to what Prof. Carr would call the frame of reference of the observer possessing that mind, or according to an infinity of frames of reference belonging to different observers. All these expressions, by means of an indefinite choice of systems of reference, of the same phenomenon by the same mind, give a strong support to realism against a subjective interpretation of the Principle of Relativity.

As a matter of fact, idealistic philosophy and science follow two ways diametrically opposed to each other. To illustrate this statement let us call "sensible reality" the world of our direct perception. Now, idealism sacrifices the second term to the first: what was a sensible reality still remains sensible, but it is not any more a reality, for it cannot be detached from consciousness. Idealism

insists then on the dissociation of perception in favour of pure sensation; and our knowledge is confined to the immediate data of consciousness. On the contrary, science, in its development, falls upon the first term, and progressively its concepts digress more and more from sensation, they become less and less sensible, while their reality is reinforced. Reality cannot become intelligible, it cannot become the object of science unless it is stripped of all its sensible qualities. To constitute itself, science has to destroy the singular, which is the only reality, and create the universal, substituting thereby for sensible reality a world of concepts. This seems to lead to idealism; but we must remember that if science is an interpretation of reality, such an interpretation presupposes two terms: mind and nature, independent the one of the other. Now, if the mind is annihilated, science would undoubtedly disappear; but reality will still be there, although mutilated, it will still exist. Nature will continue its performance; the spectators only will be missing.

THOMAS GREENWOOD.

VI.—NEW BOOKS.

A History of English Philosophy. By W. R. Sorley. Cambridge University Press, 1920. Pp. xvi, 380.

Philosophers have often received rather ungenerous treatment from the professed historians of our literature. If it is not the case with us, as it is with some peoples, that our philosophers have been the greatest masters of prose style in the language, as Plato was incomparably the greatest of Greek prose writers, Cicero (when quantity as well as quality is taken into account) of the Latins, Descartes, Pascal, Malebranche among the greatest of the French, it is, at any rate, true that several of our philosophers, Bacon, Hobbes, Berkeley, Hume—to mention no other names—are at least among the greater luminaries, and that no one who is ignorant of their writings can be said to have a really workmanlike knowledge of what may be done with our language. Yet the professed historians of English Prose too commonly pass over such men and their works as something "specialist," and send the student for his information to text-books written in the interests of a philosophical theory, where the philosophers as part of the inheritance of a nation with a great literature are hardly appraised at their full merits. All the more welcome is a book like this of Prof. Sorley's, developed from chapters contributed to the *Cambridge History of English Literature,* in which the philosophers receive their due share of attention as great writers and powerful influences on the whole mental outlook of their respective generations, and are not degraded to the purpose of "pointing the moral" that one will come to confusion if one does not accept a particular *-ism*, Benthamism, Comtism, neo-Kantianism or what not. Prof. Sorley treats his authors in the right spirit, allowing them to tell their own tale and develop their own theories, without attempting to make them say what they ought to say if the reader is to be directed into the right "ism" and warned off the wrong. He is full to the right degree and no further about the big men, and not too full about the small ones. He writes, as he always does, gracefully and limpidly, and there is probably no other work from which the general student of good intelligence can learn so readily exactly what our philosophers have done to shape the general course of the stream of "British thought" and to create its vehicle of expression. As far as I can judge, the exposition is admirably full; hardly anyone within the limits marked out by the author, *i.e.*, down to the end of Queen Victoria's reign, is passed over. I have barely noticed for myself that perhaps Aldrich deserves—from the long vogue of his *Artis Rudimenta Logicae* at Oxford,—something more than a mere incidental reference as an author re-edited by Mansel, and that, in my own judgment, three most eminent men of the nineteenth century, John Grote, Boole and De Morgan, are treated to less than due measure of appreciation. John Grote, though Cambridge seems largely to have forgotten him, deserves remembrance, to my mind, as the most incisive critic of J. S. Mill's "converted" Utilitarianism, and not less as perhaps the most searching of all the

critics of the scientific Positivism of the palmy days of Huxley, Tyndall and Clifford. The enormous influence of both Boole and De Morgan on modern logic and modern views of the mathematical sciences is the more patent the more one tries to follow the subsequent developments. I should have said that both were incomparably greater figures, and De Morgan an incomparably racier writer, than that now rather discredited colossus, Sir William Hamilton the less (I am not thinking, of course, of his greater namesake of Dublin).

If I may venture one or two other remarks, I hope they will not be taken as in any way detracting from my appreciation of an admirably full, admirably balanced and admirably written book.

The opening chapter, with its brief condensation of the whole mediæval period into a few pages, strikes me as perfunctory and possibly done mainly at second-hand. There would be a great deal to say for excluding scholastics, who did not write in our language at all, from the story altogether, but, if they are to find a place in it, I cannot think that given to Duns Scotus or Ockham really adequate to their historical importance, especially if it is true, as is sometimes maintained, that the great revolt of the theological reformers from the traditions of the golden age of scholasticism was largely due to the disintegration of scholastic doctrine produced by the influence of Ockham. I note (see p. 92) that Henry More's argument which establishes the necessity of God's existence by first proving its possibility is described in a way which suggests that the writer did not know that it is fully anticipated in the *Scriptum Oxoniense* of Scotus (as I should suppose More knew); it might have been added that Leibniz also proposed to complete the "ontological" argument of Descartes on the same lines. The extreme exaltation of Roger Bacon at the cost of his century in general also seems to me to indicate some want of first-hand acquaintance with the literature. I cannot myself conceive a competent judge with real knowledge of the works of both men seriously thinking Brother Roger the philosophical equal of the Angelic Doctor.

In the account of the early seventeenth century, perhaps something might be said more than has been said about the influence of Ramus on our literature. It is worth recording, *e.g.*, that the ill-fated James Sharp, not, of course, yet a bishop, was lecturing on the *Dialectic* of Ramus at St. Andrews in the years 1641-43. Perhaps, in connexion with page 11, I might suggest that Temple, Ramus's English follower, selected the pseudonym *Mildapettus* as a kind of anagram on *Temple*. At page 18, I should have liked to see a reference to De Morgan's penetrating and forcible rejoinder (in the *Budget of Paradoxes*), to Macaulay's vulgar and ignorant glorification of the "Baconian method". I doubt if there is a saner and better expressed discussion of Bacon's proposed method of making discovery mechanical, in our own or in any language. On page 56, in connexion with Hobbes's feats of circle-squaring and cube-duplication, it would have been worth while to study these things in Hobbes's own writings. The interesting point is that though Hobbes's constructions are always fallacious and arbitrary, he had hold of a real point in his denunciation of Wallis's *Arithmetica Infinitorum*. The development of the nascent Calculus was only possible by sitting loose for a time to logical exactness, and imagining infinitesimals which are at once nothing and something. Hobbes's objection to the infinitesimal was, in fact, logically sound; thanks to Weierstrass and his followers, the Calculus can now be taught without any reference to this stumbling-block. There is so much sheer confusion and wrong-headed obstinacy in Hobbes's repeated attempts to prove such propositions as $\pi = \sqrt{10}$, that he should, in justice, have the credit of having hit one real logical blot. With reference to page 90, it might be remarked that

Cudworth's "Moschus the Phœnician" should be Mochus; it was Posidonius who brought this imaginary person into the history of philosophy; the confusion with Moses seems to be due to some genius of the early Italian Renaissance.

In what is said of later writers of importance I have little to comment on but three points. I think the common complaint about Butler (see p. 164) that he has not worked out a theory of the relation of conscience to reason and will is a little unreasonable. Butler's work was not that of the constructor of an ethical theory; he was by profession a preacher of righteousness. His audience in the Rolls Chapel would not have denied that they had consciences, *i.e.*, were aware of a body of moral obligations, and they would have been in fair agreement, being educated Londoners of the end of George I.'s reign, about the details of these obligations. What they denied was that they saw adequate reason to regulate their lives accordingly. Hence Butler seems to have been quite justified in concentrating attention on the one issue which was really important for his purposes, the "authoritativeness" of conscience, and treating all more speculative problems as irrelevant. With regard to Hume, I feel even in reading Prof. Sorley's very balanced statement of his position that I am not sure that it is balanced enough. Hume's *Treatise*, as I read it, certainly never teaches a sensationalist theory of knowledge, or resolves causality and personality into illusions. As I understand Hume, he argues that on the one side, Cartesianism is an impossible doctrine, on the other sensationalism, seriously thought out, makes physical and moral science impossible by the very fact that it has to treat these notions as illusions. Neither of these ways in philosophy is possible, and we know of no third. Hence we are committed to scepticism in the proper sense of the word, ἐποχή, "refusal to affirm" either of the only two philosophies with which Hume is acquainted. Hume's own literary vanity which led him to republish "elegant extracts" from the unappreciated *Treatise* and to disown the rest of it, is chiefly responsible for what seems to me the grave injustice commonly done to his philosophic penetration, but I cannot but feel that it is an injustice after all. And with respect to the *Dialogues on Natural Religion* I should go further than Prof. Sorley. I think Hume openly and repeatedly treats Philo with a dramatic irony which should prove, unless Hume was wholly ignorant of the principles of dialogue-composition, that he, at least, does not represent his creator's convictions. And, as we know, Hume protested in his letters against the supposition that Philo was meant to convey his own mind. Finally, with reference to page 198, should it not have been noticed that Price does more than dwell on the same ideas as Cudworth? Whole paragraphs of Price's *Review* might fairly be said to be Cudworth's *Eternal and Immutable Morality* translated from pedantic jargon into readable English.

A. E. Taylor.

Education and World Citizenship. An Essay towards a Science of Education. By James C. Maxwell Garnett. Cambridge University Press, 1921. Pp. x + 515. 32s. net.

This volume is divided into three books, of which the first is brief and introductory. Book II. contains an attempt to state the aim of education in terms of brain physiology and Book III. describes a suggested system of education for this country.

In his first chapter Mr. Garnett utters a useful warning about the danger of metaphor in discussions on education. As he points out many obscurities of thought (and he might have added much futility in practice) have resulted from the vague use of the "broad foundations" metaphor. Unhappily the metaphor has not even been followed to its logical issue, the "foundations" being so often left without any useful building erected upon them.

Mr. Garnett, however, is not content with the abolition of metaphor. "For accurate and easy thinking about education it is necessary to select the facts about which to think and, above all, to choose facts which are simple, even if imaginary, like the line which represents the direction of a hedge. Thus, in formulating principles of education, we shall for the most part focus our attention upon the comparatively simple material aspects of the brain, rather than upon the mind or soul, of the person being educated. This procedure implies no low material view of education. It does not suggest that education is concerned with the central nervous system rather than with the soul, although it recognises that the soul can only be reached by human educators through the brain of the pupil. Nor does it assume that we know more of the brain than we do of the soul: the contrary is more probably the case. But, as Huxley pointed out, 'there can be little doubt that the further science advances, the more extensively and consistently will all the phenomena of Nature be represented by materialistic formulæ and symbols'. Bergson states the same truth more fully. 'The intellect,' he writes, 'is characterised by a natural inability to comprehend life.'" Accordingly, Mr. Garnett sets forth the generally recognised facts as to nervous arcs and their connexions, makes the assumption of psycho-physical interaction while holding also that all mental phenomena are accompanied by physiological phenomena, and taking further several hypotheses of McDougall and Morton Prince as to the interconnexion and interaction of neurones and their synapses, and as to the drainage of nervous energy, he works these with great ingenuity and patience into an elaborate system according to which, he holds, there take place the physiological processes correlated with mental processes.

It is well to keep clearly in mind, however, what Mr. Maxwell himself admits, that at present we know more of the mind processes than of the brain processes. Apart from certain well recognised features of nervous arcs and their functions, the physiology of the brain processes corresponding to higher mental processes, is based largely upon hypotheses framed in the light of known psychological facts, and is checked by reference to them. Consequently, interesting and suggestive to the psychologist as may be the working out of hypotheses as to the working of brain processes, it does not seem to afford us any surer basis for educational theory than psychology, if this be made as exact as possible. If the intellect cannot formulate such because of "its natural inability to comprehend life" then it cannot check the truth of the physiological hypotheses by their correspondence with mental processes, and Mr. Garnett's method seems to fall to the ground.

In the course of Book II. Mr. Garnett formulates five "laws of thought". They are as follows :—

I. To every psychosis there corresponds a neurosis.

II. The Law of Diffusion : excitement in any nervous arc tends to spread to every other arc that is connected with the first, through synapses the insulation of which the excitement in question is intense enough to overcome.

III. The Law of Inhibition by Drainage : any nervous arc of the higher level, if intensely excited relatively to other higher level arcs, tends to drain the impulses from those other arcs.

IV. Will, measured by the general factor (g), can reinforce the excitement in any excited system of higher level arcs.

V. Action is the normal end of every train of thought.

Now even from the point of view of brain physiology there seem to me to be grave difficulties about some of these laws. To Law I. Mr. Garnett himself seems to make the primary activity of the will an exception. Laws II. and III.—diffusion and drainage—seem to be inconsistent with one another; diffusion away from an excited system or neurogram is just the opposite to drainage towards that system. The higher excitement of one neurogram draws excitement from others but apparently it also spreads to others.

Following McDougall and Prince Mr. Garnett regards the appearance of volition as introducing a purely psychic influence. It cannot initiate a process but it can "reinforce excitement". The will is supposed to select a neurogram and reinforce its excitement, using for the purpose energy from (i) the physical accompaniments of attention (*e.g.*, eye-movements, frowning, etc.); (2) organic sensations resulting from the stimulation of adrenal glands, and (3) associated interest systems.

The soul "only intervenes in this way in the event of conflict between involuntary processes". This relative isolation of the "will," almost as if it were a function independent of individual purposes and interest, seems to me a weak point in Mr. Garnett's system and in his otherwise valuable discussion of general ability.

A man's character, says Mr. Garnett, is determined by (i) his neurography (*i.e.*, the structure and inter-relations of his neurograms), and (2) the strength of his will (p. 292). But why not by the *direction* of his will, by the type of activity which the will chooses to excite further? For this, according to Mr. Garnett's view, is not determined by the neurography itself.

The ideal citizen possesses a 'single wide interest' supported by a strong will. For the community to be ideally harmonious and efficient the interests of the various citizens must be harmonious, having their basis in religion. "A neurogram of God" should constantly form the central element of the single wide interest system. By extending this line of thought it is inferred that since no society can be as progressive as possible if its freedom to fulfil its common purpose is liable to interference from rival societies outside it, a "maximally progressive society" is one that includes the whole human race. Hence follows the necessity of making the aim of education preparation for World Citizenship.

My general impression is that this book on physiological psychology leaves us with no more certain, but rather a less certain, basis for educational theory than does a purely psychological basis (with of course the addition of ethical ideals); that Mr. Garnett's scheme of the interaction of neurograms is less exact and more vulnerable even than a psychology that still uses the vaguer terms of mental life, after an attempt to define them clearly.

Mr. Garnett indeed is constantly impelled to fall back on some of these terms himself, especially, for example, the word "interest"; and when he comes to direct psychological discussion he is sometimes far from happy. "No one," he writes (p. 63), "ever took an interest in any object about which he had not a goodly number of ideas"—an intellectualist view of interest which would forbid the use of the term in describing the fascinated interest of an infant or of a young animal in a novel object. Again Mr. Garnett speaks of "the images which go to make up a percept," and refers to the "thought-activity in the focus" gaining its meaning from thought activities on the fringe of consciousness, as though "meaning" were not normally or at least frequently focal.

The fact, however, that this elaborate physiological discussion does not give us any new psychological law does not of course mean that an attempt to state the probable physiological correlation of mental processes is useless. Far from it. It may be extremely suggestive, as is Mr. Garnett's statement in many parts. Further, the possible *modus operandi* of such physiological correlations can sometimes be more readily understood by the student than that of the mental processes concerned, and thus may be helpful even when the fact of the particular mental process taking place is beyond doubt. The type of discussion in Part II. of the book seems to me, however, to be more suitable as a study for the student of psychology than as an introduction to the treatment of Education in Part III.

Indeed the third part of this volume, in which Mr. Garnett outlines an excellent scheme for a natural system of education, can stand fairly well apart from the physiological foundations in Part II. The weak points usually owe their weakness to Mr. Garnett's faithfulness to his physiological arguments, instead of to common sense or generally accepted psychological doctrines, as for example when, in his advocacy of a single wide interest, he is led to assert that "the value of any given expenditure of effort, whether by teacher or taught or by both, decreases rapidly with the number of separate subjects upon which that effort was expended. We even proposed a formula for ideally simple cases, and said that, in such cases, the educational value of the study of a new department of knowledge was proportional to the square of the time during which the study was continued, and inversely proportional to the number of separate subjects into which that branch of knowledge was sub-divided."

Though Mr. Garnett seems to me to under-estimate the value of independent interests, his plea for a greater unification of educational studies is a useful one, and equally welcome is his protest against the absurdity, so patent in our secondary school system, of giving boys who are to leave school at fifteen or sixteen the same courses even during their last year or two, as those given to boys who are to remain till eighteen or even to go to a University till twenty-one or twenty-two.

C. W. VALENTINE.

The Psychology of Day-dreams. By J. VARENDONCK, with an Introduction by Prof. S. FREUD. London: Allen & Unwin, 1921. Pp. 367. 18s.

Dreams have been the subject of a steady stream of publications, good and bad—there appear to be few indifferent ones—since Prof. Freud offered his *Traumdeutung* to a world at first indifferent and now perhaps a little too exuberant in its efforts to atone for the early lack of welcome. Nearly all these essays, following their prototype, treat of the dreams which occur during sleep, though many of their writers must often have been tempted to investigate the day-dream. That this latter may be the product of mechanisms similar to those which fashion the sleep-dream is quite conceivable; are not Christina's musings in *The Way of all Flesh* delightful examples of more than one of Freud's contentions? Freud himself, however, appears to have done little more than to indicate the probable fruitfulness of this adjacent field to anyone who will take the trouble to cultivate it.

At last a beginning in this direction has been made; some preliminary furrows have been cut by Dr. J. Varendonck, formerly a lecturer in the Paedological Faculty of Brussels. That he has had an extensive preliminary acquaintance with some of the results of day-dreams, in a related field of psychology, is attested by the titles of two of his published books; *La*

Psychologie du Témoignage and *Experimenteele Bydrage tot de psychologie van het getuigenis.*

He gives a proof of his versatility by writing the present book in English. In its preface, apologising for his "linguistic shortcomings," he explains that he has chosen our language because he wishes to reach English readers directly, "as being, of all nations, those who show the greatest interest in psycho-analysis". Dr. Varendonck therefore needs no assurance that readers will not be lacking who, appreciating this tribute, will examine his book with sympathy. And as by this graceful action he has become one of ourselves, he will surely not misinterpret the spirit in which, in this review, criticism is directed upon its immediate value to English readers. Not a few of these, with the best will in the world, and the greatest reluctance even to glance towards the mouth of a gift-horse, will find themselves compelled to question the wisdom of the author's choice of language. For there is no disguising the fact that Dr. Varendonck's book is uncommonly hard to read. By this time one has come to regard the process of reading almost any new book on psychology as inseparable from the learning of new meanings for old words, but Dr. Varendonck's terminology is at times bewildering. In the first place, it is difficult to discover the principle underlying his choice of terms. Occasionally he seems to borrow from Wundt, as on page 218. On the next page appears one of the too rare attempts "to state clearly the precise sense" in which "the technical terms of psychology" are used. Yet the first term in the list which follows is *sensation*, which "we understand to be the psychological phenomenon (of an affective or representative nature) resulting immediately from an impression made upon the senses". Not every psychologist in this country understands sensation in that way. Sometimes Freud's own methods of expression are employed. Of this it must be said that the reader who finds Freud's terms baffling, even in their original German, will have no easier time with them when, travel-worn and a little battered by their journey to the English language via America, they eventually arrive bearing the meaning with which they have been imbued by a Belgian writer. Prof. Freud's introduction to the book may be cited as evidence that this criticism is not unfair, for in it he describes as "misleading and unsatisfactory" the author's use of the designation 'fore-conscious thinking'. Not a few times, however, as in the faltering uses of the terms hallucination, hallucinatory, illusion, delusion[1]—terms the significance of which seems by now to have become constant in English psychology—Dr. Varendonck does not appear to have made up his mind as to which meaning he is prepared to attach to the words employed by him.

That these points have been insisted upon at some length, however ungracious such an action may seem, may perhaps be offset by the obvious fact that so much space would not have been given to them if the book had been deemed less important. Though the fascinating glimpses of a new psychological landscape which it gives can at present be obtained only by tiptoeing and craning the neck to look over the intervening palisading of its language, the attempt, for the person who already knows some of the literature of psycho-analysis, is well worth making.

The chief matter of the book is divided into two parts, analytical and synthetical. In the first part the author explains how he hit upon a possible explanation of the fact—as he puts it—that he "seemed to be cleverer in bed than out of it"; that original ideas came to him just before sleep. On reading Freud's comparison of the psychic apparatus with a compound optical instrument, the constituent parts of which Freud calls 'systems,' Dr. Varendonck asked himself "Would not

[1] *Cf.* pp. 109, 110, 134, 146, 183.

these systems provide the explanation of the abundant fore-conscious ideation in the waking state"?

As a result, he developed a technique of observing, recording and analysing these day-dreams. He retraces, step by step, all the ideas which have succeeded one another in his fore-consciousness. Starting from the last link, which he writes down at once, he tries to recover the last but one, and so on, "with the least possible attention and the greatest possible abandonment," "till at a certain moment all the previous links of the concatenation come together".

The first part of the book is full of such records. There is no space in this review to discuss their technique, though much might be written upon this subject. One question however which is sure to be asked, does not seem to have been adequately answered in advance by Dr. Varendonck. To what extent, one may enquire, did his own theories and his natural predilection for them, affect not only the manner but also the matter of his day-dreams? Such a question has been asked often enough of the recorders of sleep-dreams, and in the reviewer's opinion at least, has never been fully answered. In spite of this even the most ardent theorist among dream-investigators is likely to reply that though he undoubtedly finds many instances in which his theoretical interests form the stuff of his dreams, he finds many more concerned with themes of a less lofty nature. But, *a priori*, it seems likely that traces of the "pale cast of thought" will be more evident in the day-dream than in the sleep-dream. The one recorded on page 115 even ends thus:—

"Immediately I say to myself: 'What a beautiful construction. I am going to write it down at once, for it contains a magnificent illustration of the successive risings to the surface and the sinkings into the unconscious. It entirely corroborates my theory as I have dimly constructed it.'"

From these studies, the author concludes that "the method of fore-conscious thinking" is one of concatenated hypotheses and refutations, of questions and answers, "which," he observes, "is still the most popular manner of bringing fresh knowledge to the simple-minded". As an example of this method he cites, among others, the Roman Catholic catechism: he might suitably have mentioned here an existing catechism in English which deals with psycho-analysis itself.

It is important to mention that Dr. Varendonck's own thinking takes place chiefly in words. If he had not told us in several other places that he is not a well-marked example of the 'visile' type, his footnote to page 90 would have convinced us:—

"I have even noticed of late that when I happen to read poetry now I am able voluntarily to transform the poet's words into visual images, which adds a hitherto unknown charm to the reading."

He praiseworthily sets an example to some of his contemporaries by keeping in mind the fact that his own way of thinking may not be that employed by everyone else, though unfortunately in this book he does not carry very far the comparison of his day-dreams with those of visualisers. There seems to be no reason why the 'question and answer method' should not employ visual terms.

Continuing his description of the contents of the chains of fore-conscious thought by an account of the way in which they terminate, he suggests that "distraction is directly the opposite of inspiration, for in the latter operation the streams of thought (conscious and fore-conscious) flow towards the same end while in the former they diverge". This topic of inspiration is very dear to him, for dotted here and there throughout the book there are brief, almost breathless, little first-hand descriptions of this experience, and speculations concerning its nature. He does not forget to record, too, the insomnia which is often part of the price paid for it.

On page 179 he summarises his view of the day-dream :—

"1. A fore-conscious chain of thoughts is a succession of hypotheses and rejoinders, of questions and answers, occasionally interrupted by memory hallucinations.

"2. These suppositions and criticisms look like a mental testing of memory elements adapted to meet a future situation.

"3. The associative process is directed by one or several wishes, and is the more unsteady as the directive wishes are weaker.

"4. Every chain originates with a remembrance that is, as a rule, emotionally accentuated and which is either brought forward on the occasion of an external stimulus or simply obtrudes itself upon our fore-conscious attention.

"5. As the chains progress their depth varies continually ; visualisation is predominant when they proceed closest to the unconscious level ; in the reverse case verbal thoughts prevail ; but when the ideation proceeds in images, the relations between the visual representations are kept in mind without being represented, and only words can render them adequately when we decide to communicate these phantasies, which are not meant for communication.

"6. They move only in a forward direction, which renders the later correction of their constitutive parts impossible except through the intervention of conscious functions. Another cause of errors is the mind's unlimited capacity for forgetting as well as for remembering.

"7. These streams of thought are brought to an end (before or after their aim has been reached) at a moment of mental passivity under the influence of some affect which causes them to rise to the surface, or because memory is set in action in the service of apperception, following upon external stimuli.

"In both cases the result is a return to the conscious state."

The second or synthetical part of the book deals with more general and theoretical matters. In it the relations between the 'affect' and memory, apperception and ideation are discussed in detail. In the first chapter several interesting features of a writer's everyday life are examined, *e.g.*, the necessity of working when one is 'in the mood'. In this part of the book distinctions are rapidly drawn between wish and will, intuition and repression, affective and conscious thinking, and some of them seem to be at times more puzzling than helpful. "The history of mental evolution teaches us that consciousness is mainly the result of the successive repression of our affects" is a sentence which, in or out of its context, still tantalises the reviewer.

In a psychological treatment of insomnia Dr. Varendonck suggests the possibility of five varieties of psychically determined sleeplessness, and, maybe, penetrates a little deeper into a mystery the further investigation of which should yield very useful results. This vein into which he mines just a little farther than his predecessors is one which it is hoped he will not abandon ; for not only has the advancement of science so far done comparatively little to strengthen the doctor's hands in dealing rationally with insomnia, but the recent improvements which have come about have been almost entirely due to increased knowledge of psychological methods of treatment.

It is impossible to characterise this book in a few sentences. A critical attitude towards the works of Prof. Freud and Dr. Jung would enhance its value. The 'wish theory' of night-dreams seems never to be questioned—the countless terror-dreams of the war notwithstanding—though the book is published in 1921. Jung's views, as expressed in his *Psychology of the Unconscious*, are mentioned (p. 303) with no hint that any alternative or supplementary conceptions have been considered. The author's opinion

(p. 26) that "in the matter of research it is best to go one's own way" is one with which many people sympathise, yet the wisdom of extending this doctrine to the process of subsequent publication is questionable.

The reviewer hopes to see at an early date, a new edition, with many alterations. He would like too, to read an edition in French. One reason for this would be the interest of watching Dr. Varendonck's mind at work with another, and perhaps, for him, a more plastic, medium of expression.

T. H. Pear.

Moral Theory: An Introduction to Ethics. By G. C. Field. London: Methuen & Co., 1921. Pp. x, 214.

Common-Sense Ethics. By C. E. M. Joad. London: Methuen & Co., 1921. Pp. xvi, 207.

These two books, coming from the same publishers at 'popular prices' and almost at the same hour, seem to invite comparison at least in their accidents. They are sharply contrasted, however, in taste, spirit, and temper. Mr. Field, scholarly and patient, goes to the great moralists of the past, and tries, through them, to make his readers ask and understand what the reason for being moral truly is. Mr. Joad, pertinaciously new-fangled, relies upon what he calls 'verve'. Nine-tenths, at least, of Mr. Field's book, is a connected argument, unusually closely woven. Mr. Joad prefers 'impressionistic methods and provisional generalisations'. Indeed, like the new American novelists, he is often willing to let the titles of his paragraphs, in leaded type, do the work of connecting his story. And so of other points.

The plan of Mr. Field's book is simple and effective. In the first part, he tries to show his readers how Kant conceived the reason for well-doing; in the second he examines how Aristotle conceived it; and he pursues the quest towards a tenable theory in the third part. Mr. Joad's plan, if similar in a way, is only superficially so. He begins, it is true, with an account of traditional theories, but this, he tells us, is only a 'game' and the reader may skip it if he wants to, since the empirical or common-sense ethics about which Mr. Joad is really in earnest is essentially a revolt against tradition and its fusty shibboleths. Indeed he believes that the roots of it are planted in the irrationality of the universe.

Mr. Field is not a Kantian, but his exposition of the *Fundamental Principles*, besides being lucid, careful and explanatory, has the signal merit of trying to make the reader see that Kant really was discussing fundamental points in our conceptions of right and wrong. Moreover, our author indicates the respects in which the stock objections to Kantianism are matters of the letter rather than of the spirit. He believes, however, that Kant and many others based their theories on a fundamental fallacy, and the unmasking of this fallacy, together with the constructive correction of it, is the cardinal contention of his book.

This lethal, devastating fallacy is the psychological assumption that reason can be practical, and I must frankly confess that Mr. Field does not convince me at all. No doubt if reason is *defined* as the discovery of mere means and of connexions of fact, then values and ends are excluded from its jurisdiction by definition, but in that case the definition seems wholly arbitrary. Why should the values of ends be outside the province of reason, and why should knowledge of this kind be impotent? In effect, Mr. Field relies on the intuition that knowledge cannot move, and he is so obsessed by this idea that he actually identifies a 'motive to

action' and a 'reason for action' entirely *sans phrase* (*e.g.*, on p. 56). This seems to me a glaring oversight. I can think of no *reason* for action except the knowledge of worth, but I can think of many motives to action or causes of it which are not reasons at all. And I cannot see why these moral reasons should not affect our actions. "It is not mere knowledge that moves us to action at all," Mr. Field tells us, "if the criminal did not mind being hanged, if I am absolutely indifferent whether I get well or not, then this knowledge would have no effect on our action one way or another". *Soit:* but if the criminal had not the faintest idea whether any of his actions had the remotest connexion with his being hanged, his feelings would have no effect on his action one way or another, and if knowledge does have an effect on action, why should not knowledge of worth have its effect?

Mr. Field deals much more tenderly with Aristotle than with Kant, and this is natural seeing that he believes that 'purpose is a far more fruitful conception than obligation'. But certainly he is thorough. He who snorted like a charger at the notion of anything being good in itself purrs like a contented kitten at the notion of ends which are sought entirely for their own sakes. But enough of that. Throughout his discussion Mr. Field is bent upon giving us a modified Aristotelianism, and the constructive argument with which he supplements his excellent and sympathetic exposition of the Stagirite, is interesting and often valuable. Perhaps, even, he makes the best of his case. Some of his readers, I venture to think, will find it desperately hard to believe that the only reason for being moral, or even decent, is the fact that every human being, whatever he may happen to think, 'really' desires the 'ideal,' and some, I fear, will forget this theoretical framework of heaven (which is not in the future) and remember only that love and affection (if possible, mated with understanding) are the best things in life according to our author. I hope they will not forget the theory however. There is no book on ethics with which I am acquainted that is more persuasively convinced of the utter need for hard thinking in moral enquiries. From the outset the author takes his reader into his confidence, and invites him to search for a reasonable answer to one of the most important of all questions; and he never loses his frankness, his sincerity, or his faith.

As we have seen, the spirit of Mr. Joad's enquiry, and its considerable merits, are very different from Mr. Field's. As I understand him, Mr. Joad intends the first part of his book to be philosophical, logically watertight, and all the rest of it, while in the second part he is prepared to throw logic to the winds (when it suits him) in order to reach 'the principle at which we happen to have arrived'. In the first part he plays the traditional game according to the traditional rules (even to the extent of playing at a logical reconciliation of opposing theories). In the second part he does something better, for he deals with life which is larger than logic.

In so very argumentative an author, this open scorn of logic when he ceases to be playful, seems somewhat peculiar. Indeed, it occasionally sounds like 'rationalising' or inventing a virtue to mask a troublesome uneasiness. This suggestion, however, is probably unfair to Mr. Joad. He seems to be desperately in earnest with his irrationalism.

At the same time, he allows himself a great deal of latitude both in point of logic and in point of accuracy, what time he is playing the traditional game. Thus, in the matter of accuracy, it is surely preposterous to regard Kant as the chief protagonist of 'moral sense theories'. To be sure, it is not at all clear from Mr. Joad's statements that 'the German philosopher Kant' of whom he speaks is really Immanuel Kant, Professor at Königsberg. Still Mr. Joad, I think, means to convey this impression; and, if

so, one may be pardoned for wondering why he neglected to state that Immanuel Kant repudiated the moral sense (calling it a principle of heteronomy), and affirmed most explicitly that we have *no* special sense for good and evil (*e.g.*, *Metaphysical Elements of Ethics*, Preface). Again, in the matter of logic, Mr. Joad tells us that the subjectivity of feeling makes it an untenable basis for ethics. This view, he says, 'cuts at the objective basis of all morality' and 'nullifies the teaching of history'. Yet he informs us triumphantly, only six pages later, that 'Good is the object of desire not of reason'. It would be interesting to know why the subjectivity of *desires* is not an objection, or what the momentous difference is between Jack Sprat's liking for lean, and his desire for it.

These examples are not isolated but they are sufficient of themselves, I think, to justify what I have said. Moreover, it is hard to see how Mr. Joad's Part I. really proves that traditional ethics has very little bearing on life. In view of the enormous influence of Benthamism upon English legislation, for example, it is surely necessary for Mr. Joad to explain with rather special pains why utilitarianism really had nothing to do with life. Instead of that he tells us, with more violence than care, that he hates *a priori* reasoning and that Hobbes and Hegel were miserable sinners. The 'game,' like angling, calls for patience, does it not?

Mr. Joad's Part II. presumably should be judged by other standards, and I do not know what the proper standards are. On the face of it, however, despite its disclaimers, it professes to arrive at a truth by some sort of impressionistic argument. This truth is that ethics 'becomes psychology' being simply a question of how to satisfy the individual; and the basis of the truth lies in metaphysics. In common with all things, we are the creatures of the Life Force which will not let us go. Impulse is the direct expression of the Life Force. Therefore, the life of impulse (so far as we can get it) is the good life!

Surely this is very odd. "Impulse," says Mr. Joad, "is the expression of the principle of change, reason of the principle of conservation". Is there, then, no principle of conservation in our lives? And if there is such a principle what, on the theory, can its source be *except* the Life Force? Is it not life that inhibits? And is the impulse to restrain, to meddle, and to blame (which Mr. Joad abhors so fervently) *not* an impulse at all? Mr. Joad is a topsy-turvy Manichæan, loudly proclaiming that morality is the devil. But there is no room for any devil in his metaphysics.

I suppose, however, that these remarks are not in the proper spirit. Certainly, they do not touch the distinctive merits of the book. Mr. Joad sets out to be lively, readable, and provocative. He succeeds. Also he tries to break new ground. And he succeeds again.

The chapters entitled "The Psychology of Impulse" and "The Place of Impulse in Politics and Society" are by far the most important in the book. In their general outline these chapters follow the lead which Mr. Russell gave in his *Principles of Social Reconstruction*, but there is nothing servile in Mr. Joad's discipleship. Mr. Joad develops and expands *con amore*, and he writes with refreshing skill and with manifest sincerity. Whatever may be thought of the sufficiency of these theories, and of the larger background of the new psychology and of the new politics in which they are set, it is at least certain that moralists of the present day cannot afford to ignore them. There *is* a gap in moral theory precisely at the point which Mr. Russell and Mr. Joad select, and therefore there is something more than literary freshness in this gallant foray of Mr. Joad's.

JOHN LAIRD.

Alle Radici della Morale. By Ettore Galli. "Unitas" Società Edit., Milan, 1919. Pp. 414. Lire 15.

Nel Dominio dell' "Io". By Ettore Galli. "Unitas," Milan, 1919. Pp. 202.

Nel Mondo dello Spirito. By Ettore Galli. "Unitas," Milan, 1919. Pp. 250.

These three books consist of elaborate psychological studies, aimed at exhibiting in detail the author's view that psychology is the true basis of moral theory, and indeed, it would seem, of all philosophy. I may ob-observe at once that his hostile attitude to any doctrine involving considerations of transcendence almost produces (as in Croce and Gentile, with whom otherwise he has nothing in common) a peculiarity of style. "Esce dalla vita," "in un altro mondo," "di lá," "fuori delle sue leggi" (of the psiche), are expressions of a type which he constantly employs to characterise doctrines which belong to the metaphysic of ethics in its largest sense. I am not saying that he is wrong in applying such language, *e.g.*, to the complete machinery of Kant's ethical system. Where I should find a difficulty would be rather in his tacit postulate that metaphysic has no meaning except as such abstract ontology.

Having made this protest, I should add that he seems to me a sincere and thoughtful student, who interprets his psychology as largely as possible, and ingeniously finds room in it for most of what a philosopher of another type would want to say, while returning to remind us every now and then that if we take it beyond the province of psychological fact it all becomes an illusion. He is, if I follow him right, quite favourably disposed to this illusion, which he takes as in fact inevitable and at the root of life.

The roots of morality are in "biological tendency," the tendency to the "utile" of the organism, which is the inmost nature of human and animal impulse, and is not a reflective aspiration after pleasure in the abstract. It might be described, I think, in Beccaria's phrase as "that force similar to gravity which thrusts us on to our wellbeing," and there are other points in the work (the account of punishment, and of duty and justice) which recall Beccaria. The treatise consists of a detailed account of the gradation of conceptions of wellbeing through which this impulse pushes us onward, giving organisation and doctrinal form by the way. Its link with our views of life is through the tendencies described as Optimism and Pessimism, which depend on the biological "potential" of the organism. Optimism, being the reflexion of the tendency to life, prevails, and with it the ideas which are necessary to life.

Duty, Justice, and Values are the results in morality of the "tendency"; but construed as Duty for its own sake, as Justice involving retribution, and as objective values apart from desire, are misinterpretations of the biological facts from which they spring, and which, if sincerely and concretely interpreted (Duty and Justice are *means* to the end of life) they represent with fulness and truth. But the conclusion of the whole matter is that "Psychological forces are the base and the secret stimulus of morality. Morality is altogether a consequence of the psychical constitution of the man who lives it and the philosopher who theorises it. Its objects, its principles, hypostasised and located outside of the world and of man to find their justification, are the fruit of psychological illusion, are the revenge of psychology on those who do not take due account of it." I think, from his own point of view, he keeps consciousness too separate, and does not give it its conative value *ab initio*.

The second work is a very detailed exercise on the formation and characterisation of the ego by means of the mine. The sense of the mine

is a special case of internal sensation; not feeling, because not pleasure-pain—it might be called "senso"; and it is this quasi-sensation, here analysed and illustrated at great length, first as its cases affect the ego, and then as the ego's moods affect it, that is the true non-conceptual basis of the ego. Comparing it with the kind of sensations to which James tended to reduce the self, it seems more complete and more relevant. A case which has strongly impressed the author is the sense of property in the Italian peasant proprietor, which apparently is highly aggressive towards an intruder.

The third book contains disconnected papers; on Introspection as a method (the only true method of observation; it includes all observation, and, practically, deals with the past and with images only); on the jest (Scherzo or Burla) which has something in common with Bergon's *Rire;* and on what the author calls Attesa in contrast to Attenzione. This shows his ingenuity well, I think. Attesa is prospective attention which implies an act to be done. This attitude of the whole self, underneath the perceptual observation, he compares with the experience of waking at an hour previously fixed, and this again he likens to an imperative to which the whole subconscious self is adjusted, as in the moral imperative. You have in such attention an observation and a command. There is a criticism of the futurists which seems to me plausible, on page 126. They try to assist the imagination by supplying visible notes of incompatible times, but really interrupt and baffle it, by taking its work out of its hands.

The last paper treats of freedom of the will, condemning the idea of contingent or arbitrary freedom as psychologically negative, and construing positive freedom in terms of the number of alternatives prepared by mental process and open to choice. This hardly meets the whole difficulty, which I suppose lies in the determinants of the choice. Of course I cannot agree with the author's philosophy which partakes of the anti-metaphysical spirit, prevalent, I imagine for historical reasons, in Italy to-day. But I think that what he wishes to maintain has much truth in it.

BERNARD BOSANQUET.

Spinoza and Time. By S. ALEXANDER. London: Allen & Unwin, Ltd., 1921. Pp. 80.

In this small volume Mr. Alexander repays a debt which he seemed to have overlooked in his monumental Gifford Lectures; though, in fact, the magnitude of that debt appears much less now that it has been exhibited and discussed, than it seemed unacknowledged but suspected. It is well known that in a certain austere yet complaisant mental attitude and atmosphere, something of the disinterested spirit of Spinoza rests upon his compatriot; and when to this is added the insistence upon the spatio-temporal ground of Reality in Mr. Alexander's system, it is not surprising that a larger debt was imagined than a detailed study actually reveals.

It may seem, especially to those who rely for their interpretation of Spinoza upon his commentators (and we cannot regard Mr. Alexander as belonging to that category, despite his too modest remarks on p. 19), that it is unfortunate to cite the spatio-temporal ground of Reality as a point of agreement with Spinoza; yet it must never be overlooked that for Spinoza Extension is eternal, which, if it means anything at all, cannot mean timeless, except in the sense in which Dean Inge speaks of timelessness as negating 'not the reality of the present, but the unreality of the

past and future' (*Outspoken Essays*, p. 275). For Spinoza, *Nihil in ideis positivum est, propter quod falsae dicuntur.*

The line of argument offered by Mr. Alexander in the present volume is unique; he proposes to himself the question: What difference would it make to Spinoza's philosophy if we 'assign to Time a position not allowed to it by Spinoza himself, but suggested by the difficulties and even obscurities in which he has left it' (p. 20)? In effect what he wishes to do is to make Time an Attribute of Ultimate Reality, and to degrade Thought to the status of a finite mode.

Mr. Alexander centres an important part of his criticism of Spinoza about the well-known discussion between the latter and Tschirnhausen (*Ep.* 69-72), as to how the variety of the universe can be shown *a priori* from the conception of extension; and he indicates his view that the solution of Spinoza (*viz.*, that the variety cannot be deduced merely from the conception, but only through the eternal and infinite Attribute) is inadequate *because he has omitted Time.* And Mr. Alexander quotes (and accepts as just) the suggestion of Mr. Joachim that Spinoza is asserting that the Attribute differs from the conception because it expresses God's omnipotence, and because Substance is alive. But life and omnipotence, he objects, 'are undefined ideas, transferred from our experience, to describe metaphorically the being of God'. Doubtless that is true, I hold no brief for Mr. Joachim, nor do I wish to read more into the words of Spinoza than his letter warrants (*De his forsan aliquando, si vita suppetit, clarius tecum agam. Nam huc usque nihil de his ordine disponere mihi licuit*), but none familiar with the mind of Spinoza will believe for a moment that he is guilty either of a verbal trick, or of the vague generality suggested by Mr. Joachim. Of course, as Mr. Alexander asserts, Spinoza would certainly have rejected the notion of Duration as an *Attribute*, and in my view he would have been right to do so, not merely because it would have meant remodelling his system, but because the notion cannot, in the end, sustain itself.

In order to bring that out let us see very briefly some of the results of Mr. Alexander's 'impossible hypothesis'. First of all, Infinite Substance goes and we are left with 'Stuff' which is identified with Spinoza's immediate mode of Motion. Finite things are not 'modes' of 'substance' but 'pieces' of 'Stuff'. Then, Mr. Alexander tells us that this Infinite Stuff, although full of Time, is itself timeless, in the sense that it has neither a momentary existence nor a single duration. It 'comprehends them all'. And the only way in which Mr. Alexander can avoid the difficulty which Spinoza met, and which made him exclude Duration as an Attribute, is by refusing to consider Stuff '*as such*'. But how can Time be an *Attribute* of Ultimate Reality if that Reality is either not conceivable 'as such,' or else is not temporal? The question we have to press is whether Duration is an attribute of Stuff-as-such. And we cannot let Mr. Alexander off with metaphors: 'The stuff of reality is not stagnant, its soul's wings are never furled' is no more satisfactory than Mr. Joachim's metaphor. Nor, I think, can Mr. Alexander really avoid our question, for he holds that the grades of modal perfection proceed, not in logical order as in Spinoza, but in *temporal* order, and that at least suggests that Stuff chronologically precedes its qualitied 'pieces'. It seems to me, therefore, that Mr. Alexander asks us to cease our analysis just where we are most interested in proceeding; and we prefer with Spinoza to follow the argument to the bitter end.

I make no further reference to the degradation of the Attribute of Thought; it is based upon a familiar doctrine of Mr. Alexander's Gifford Lectures. Nor have I space for the very important and ingenious piece of Spinoza scholarship embodied in section 6, *viz.*, the

problem of the apparent lack of symmetry as between Thought and the infinite other Attributes; I believe that Mr. Alexander is here working along fruitful lines, though the matter ought to be capable of an even simpler exposition.

In passing to the consequences for religion resulting from Mr. Alexander's 'gloss,' one may note that he complains that Spinoza's God lacks 'the human note,' because it contains humanity and all other things 'indiscriminately'; it contains both good and evil, and is not in the 'lineal succession of goodness'. Yet Spinoza clearly asserts: *Probi inaestimabiliter plus perfectionem quam improbi habent.*

Mr. Alexander's general view of the relation of deity to Space-Time and to the other qualites is well known. At each level of existence the individuals feel the '*nisus*' towards the next higher level. For us as minds the *nisus* towards the quality of deity is religion. As the object of devotion God is the infinite whole with its *nisus* towards deity, but no infinite being possesses the quality. Now for us the question is whether such a God better fulfils Mr. Alexander's own conditions than the God of Spinoza? Is it more suitable as an object of devotion? Does it possess 'the human note'? Is it in 'the lineal succession of goodness'? Mr. Alexander does not here discuss the last of these questions; and however one might be prepared to agree that his God, if believed in, would be an object of admiration or fear, yet I cannot conceive Him as the object of devotion. For He, too, is lacking in the human note, and devotion implies and includes love for its object. Why should I love infinite Space-Time with its *nisus* to deity? If Spinoza's God lacks anything, it is that responsiveness to love which we enjoy in our fellows, and which love, as we know it, seems always (*pace* Goethe) to demand. But I cannot feel that Mr. Alexander offers us even as much as we have in those great words of Spinoza: *Amor Dei erga homines et Mentis erga Deum Amor intellectualis unum et idem.*

H. F. Hallett.

Proceedings of the Aristotelian Society. New Series. Vol. xxi.: 1920-1921. London: Williams & Norgate, 1921.

Dean Inge's presidential address has for title the question, 'Is the Time Series reversible?' It discusses the distinction of past and future, with the implied starting-point of the present; the distinction of earlier and later, and the meaning of the causal order; and finally the question, how far the hypothesis of the illusoriness of the time succession conflicts with the facts of life and change. The address is not a long one and maintains throughout an attitude of tentative suggestion. Dean Inge says, in fact, that he has not "even attempted to reach any conclusions". The following sentences, however, seem to represent his own view, though it is left in rather vague outline. "The Time-Succession seems tnen to belong to a half-real world, and to share its self-contradictions. We are partly in this half-real world, and partly out of it. We are enough out of it to know that we are blind on one side, which we should never know if Time were real, and we inside it."

The Symposium on 'The Character of Cognitive Acts' by J. Laird, G. E. Moore, C. D. Broad, and G. Dawes Hicks, is an interesting one and invites more comment than I have space to give it. As is apt to be the case, the exact nature of the question at issue is not clear at the outset, and the third paper, Prof. Broad's, is the most useful in clearing it up. He analyses very carefully the meaning of the question and the possible answers that may be given to it. Sometimes, however, his own assumptions seem o need some of that critical questioning which he applies to

those of others. "Why should not a complex as a whole," he asks, "have the property of being mental though it consists of a set of related terms none of which is mental?" We are expected apparently to swallow this paradox without difficulty. The only aid which Prof. Broad offers is the suggestion, "just as an army has certain properties that belong to none of the soldiers in it". But an army has not, at any rate, the property of being a human complex none of whose constituents are human. I think the whole discussion might have gained by being brought into relation with a well-known and fully worked out scheme of mental analysis like Ward's—for the reasons, among others, that Prof. Ward has insisted so strongly on the activity involved in presentation, and that he is careful about the precise and appropriate use of terms. The present discussion abounds in phrases which seem unhappy, to say the least. Thus an 'act' may have 'objects' as 'constituents,' an 'act' has 'contents,' a 'cognition' may not be an 'act,' an object cannot 'appear to have a character' save to a 'cognitive act,' the something that we call 'I' may be nothing distinct from and other than 'acts'. Prof. Laird maintains in a vaguer way than Ward that the analysis of cognition requires us to recognise an 'act' as well as an 'object,' but, on the other hand, goes further in claiming a direct introspective acquaintance with the 'act'. Dr. Moore and Prof. Broad may be said to agree in questioning the existence of any such distinct subjective factor and in turning their attention to the objective 'constituents' of the 'cognition,' *i.e.*, objects and relations between objects—a result which is no doubt natural enough when an 'act' is arrested for examination. In view of the fact that his analysis of cognition had been directly challenged, Prof. Dawes Hicks is obliged to devote the first part of his paper to a brief explanation and defence of it. I wish he had had space to develop this interesting explanation a little further, for I share Dr. Moore's difficulty about the 'content' of the cognitive act and am not clear as to its relation to the 'content apprehended'. In the second part of the paper Prof. Dawes Hicks indicates the relation of his own view to those of the previous writers.

Three papers deal with certain philosophical aspects of science. Prof. W. P. Montague's on 'Variation, Heredity and Consciousness' is an attempt to show (1) how some of the facts of biology which seem least capable of being expressed in mechanical terms—facts of Variation and Heredity—can conceivably be so expressed if we suppose additional complications of the mechanical apparatus, (2) how, on the assumption of parallelism, the characteristics of consciousness can be reconciled with a mechanical theory of the bodily processes. As dealing with abstract possibilities the whole discussion is rather in the air, and the last part of it in particular is not easy to follow. Prof. J. E. Boodin's paper on 'Cosmic Evolution' maintains, in a somewhat diffuse and rhetorical fashion, that there must be "an eternal hierarchy of levels in the universe. Law and order on the lower levels are due to an interpenetration by the higher levels. . . . These levels . . . are not mere abstract forms, as Plato's Ideas, but energy patterns." Miss Dorothy Wrinch's paper on the 'Structure of Scientific Inquiry' insists on the importance of developing the logical relations between the lower and the higher generalisations of science. These generalizations state the co-existence of sets of properties, and the logical problem of science in its higher stage is "to relate our generalisations among themselves so that they follow inevitably from the smallest number of unexplained and unexplainable primitive assumptions". From identity of form in the logical scheme of relationships we may often be able to see how the solution of problems in one department of science covers those in another. With these papers may be grouped Miss Hilda Oakeley's 'On Prof. Driesch's Attempt to combine a Philosophy of Life

and a Philosophy of Knowledge' in which she seeks to show, that in this writer's later works the philosophy of knowledge is tending to gain a questionable predominance over the philosophy of life, and to deprive life and history of their due significance for the final interpretation of reality.

In a paper called (not too appropriately) 'The New Materialism,' Mr. C. A. Richardson uses some of the familiar doctrines of Prof. Ward as the basis for a criticism of Neo-realist views in regard to sense-data. Prof. Hoernlé's 'Plea for a Phenomenology of Meaning' maintains that all current theories of meaning are inadequate, and urges the need for "the collection and unprejudiced examination of all types of empirical situations in which signs function". Whether any valuable contribution to philosophy is likely to reward the proposed labours is a point on which the reader may have his doubts. In the last paper of the volume, 'On Arguing in a Circle,' Dr. Schiller contends that there is no formal distinction between arguing in a circle and what he calls 'arguing in a system,' *i.e.*, the logic of Absolutism. The argument contains too many divisions and subdivisions to be easily summarised, but the following quotation may serve to indicate the line taken, and to show at the same time that Dr. Schiller has not wholly succeeded in putting himself at his opponent's point of view. "Just because proof is held to depend on systematic connexion, the complete system is not capable of proof. The proof must fall within it, and none can apply to the system itself. It is a corollary from this that a (partial) system can be proved only from without."

H. B.

The Making of Humanity. By Robert Briffault. London: George Allen & Unwin, 1919. Pp. 371.

An apology is due to Mr. Briffault for the late appearance of this notice of his *Making of Humanity*, a sequel to which has been already reviewed in Mind. Mr. Briffault is a provocative, a confident, and not always an accurate writer; but those most likely to be repelled by these characteristics are perhaps those most likely to profit by careful consideration of the case which he here presents with a somewhat one-sided trenchancy. Though he opens with a Greek motto, he is perhaps not very familiar with Greek. When we find him speaking of Porphyry's Isagogue, or of the pseudo-Dyonisius, we may hope that the printer is to blame; but the printer can scarcely be responsible for the 'clans, genoi, phrateries' of page 121. Ignorance of Greek is not indeed a crime, but it suits ill with the contemptuous tone of Mr. Briffault in dealing with such mistakes of scholarship as he detects (for example Alcuin's, in speaking of Æneads). His own learning is much at fault when he comes to the middle ages. On page 216 alone 'one Brother Vergil'; 'John Erigena who had travelled in the East'; 'The eucharistic heresy was—it was hoped—adequately laid at rest by Archbishop Anselm of Canterbury'; 'Abélard, who proclaimed that reason was the supreme and sole authority' are sufficient to prove to those acquainted with the subject how ill qualified he is by knowledge of the history of the period to write with such assurance about it. Of the knowledge of Aristotle in the west before the twelfth century he shows himself equally incompetent to speak (one would like him to have pointed out the 'meagre fragments' of that philosopher to be found in Capella), and what he says of Averroes suggests that he does not know the thesis of Renan's book concerning him. His cocksureness about matters so difficult as the influence of totemism and the doctrines of Mithraism do not inspire the cautious reader with confidence. One wonders what he knows of 'the solemn intonation of the

Mithraic clergy as they called upon the "Lamb of God that taketh away the sins of the world"'. Who could guess from this passage that no Mithraic liturgy has come down to us, with the very doubtful exception of one document, printed as such by a German scholar, which contains nothing remotely resembling such a phrase; or that the victim in the holy sacrifice of Mithraism was not a lamb but a bull, and that this victim was not, as in Christianity, himself the priest?

The thesis of Mr. Briffault's book is that 'rationality of thought' is 'the means and efficient cause of the evolution of the human race,' 'the sole actual instrument of human progress' (p. 51). The 'progress of evolution' in general 'has not been pre-ordained or planned, but groping and fumbling' (p. 22); but the development of man, once 'rational thought' has taken it in hand, is subject to laws which make 'the ideal of an independent and segregated human group,' 'of a national civilisation, of an empire, of a state' 'an unrealisable impossibility'. It must thus lead eventually, we gather, to an organised humanity, and Mr. Briffault, like many of his contemporaries, looks askance at all theories of national imperialism as attempts to hinder the movement in this direction. It is not without an eye to people nearer at hand than the ancient Athenians of whom he is immediately speaking that he remarks: 'A league of Greek nations, such as the Cynic and Cyrenaic philosophers advocated was all very well before the instant menace of Persian aggression, but as a permanent order it was an unpractical dream'. 'It would, for one thing, mean the giving up of the command of the sea, and that, of course, was not even to be thought of' (p. 137). The great enemy of 'rational thought' is, for our author, 'power-thought,' a 'functional disease' of thought, 'absolutely inevitable and incurable' in 'the holder of any form of power' (p. 81).

In these contentions there is no doubt contained a good deal of truth, but one would like to press Mr. Briffault here and there with questions such as these. How are we to reconcile the statement on page 49 that 'the brute-man first bethought himself of using his brain as a handle to his tools and weapons' with that on page 47 which appears to identify 'thought' with the use of the brain cells? Did 'the brute-man' know that his brain had anything to do with it? What was the origin of custom (p. 74)? Is any form of civilisation conceivable in which no one will hold power and so inevitably succumb to the disease of power-thought?

Mr. Briffault's views on ethics are also not uninstructive, although again they leave one unsatisfied in certain points. The 'moral law' is but 'a man-made convention,' yet 'it does correspond to a very real and supremely important fact in human development' (p. 260), namely that 'the peculiar means and conditions of human development necessitate that that development shall take place not by way of individuals, but by way of the entire human race'. 'Ethical development, like every other aspect of human progress, not only goes hand in hand with the growth and diffusion of rational thought, but is the direct outcome of it' (p. 267). But it is not with the traditional moral code of Christendom that we have to do. The influence of religion on ethics is in the main viewed by our author in the spirit of Lucretius: *Tantum relligio potuit suadere malorum*. 'Justice is the whole of morality' (p. 296). He is disposed to deprecate the high value often set on individual sanctity even apart from correctness of judgment. He pooh-poohs the charge of 'corruption' frequently brought by prophets and satirists against complex civilisations. He has little respect for the morality of good intentions, for the 'sincere and disinterested sense of duty towards mankind' which has actuated so many persecutors. He is obsessed by 'the wickedness of the "good"' and finds the unpardonable sin in our estimate of intellectual error as morally

indifferent when our purpose is pure. Democracy, though 'the worst form of government,' is 'the only social order that is admissible, because it is the only one consistent with justice,' which is 'even more important than efficiency and expediency' (p. 295). Thus, while at first Mr. Briffault's ethics seem to be the antithesis of Kant's, as being based not upon the good will but upon the results obtained, we come back to what is expressly called (p. 296) 'the categorical imperative of justice'. 'It is largely *because* of the vigour of the forces of moral protest in periods of high culture that all their abuses and corruptions stand pilloried in the fierce light of denunciation' (p. 311). This is no doubt quite true. 'Views and opinions are the only ethically significant, the only moral and immoral things' (p. 322). 'Our morality has improved because our intellectual development and rationality have advanced' (p. 325). The perversion which he finds in our traditional Christian ethics he traces to the stress laid by Stoics and Epicureans on the formation of individual character, the consequence of which is that 'the basal function of all morality becomes inverted; it actually behoves to "resist *not* evil"' (p. 332). It is perhaps somewhat surprising to find that with these opinions Mr. Briffault is not an unbeliever in immortality.

There is a certain nobility in Mr. Briffault's outlook and, if one is dissatisfied with what may seem a one-sided conception of morality, there is nowadays so much justification for calling attention to the importance of reason in life that one may easily excuse him for failing to solve so difficult a problem as that of the relation of our moral consciousness to the scientific view of the world. On the principle on which Kant made a practice of reading books which aimed at disproving the reality of the three great objects of faith while neglecting those which aimed at proving it, some of us who are less content than Mr. Briffault to part company with the tradition of Christendom may yet find his pages more profitable than many, more balanced and more scholarly, written in support of that tradition.

C. C. J. W.

Die Religion der Vernunft aus den Quellen des Judenthums. By Hermann Cohen. Leipzig: Gustav Fock, 1919. Pp. iv, 629.

This massive book was the last preoccupation of the well-known philosopher who, along with Natorp, has for many years led the so-called "Marburg school". One of its aims—and this alone concerns the readers of this journal—may be said to be the detailed transposition of Hebrew religious thought (the general results of modern criticism being accepted) into the terms of pure dialectic. What we really have is a kind of allegorising treatment of Old Testament ideas and history, only in this case the allegorical method yields, not religious truths or moral lessons, but logical values.

It is reason, we are told, which as the source and organ of conceptions first creates the idea of religion; for reason is by no means exhausted in science and philosophy. Like those other disciplines, religion, in so far as it consists of and rests upon conceptions, must derive ultimately from reason. And when Judaism is properly construed, it can be shown to contain, as no other faith does, the purely rational religion. The course of its development unfolds the creative work of reason in the sphere of *das Heilige*. There we see religion displaying itself as a universal function of the human spirit. As the Greeks lit upon the right method in science, so did the Hebrews in an even more important realm of life. "We have to

investigate, in the sources of Judaism, the deepest philosophical motives by and in which the religion of reason is actualised. And we shall have to note that this elemental force of reason began to stir, not merely in the later history of Judaism, when Greek influences were at work, but in the very earliest thoughts of Judaism. There already we find bonds connecting the Jewish mind with philosophic reason. . . . The religion of reason imparts to the sources of Judaism its original, natural, human connexion with philosophical speculation, and is no more imitated from Greece than it is borrowed." Perhaps it would not be unfair to compare this with Hegel's construction, but it is Hegelian philosophy of religion covering and interpreting not *all* the great faiths but solely the Hebrew evolution.

Everywhere reason stands for rule or norm, hence the religion of reason is fundamentally determined by law. Legality is the very mark of the pious life. Idolatry must be eradicated, and there is no fanaticism whatever in saying so.

But does religion have any real place or meaning over against morality? Certainly for the Jewish mind the two things never could fall apart. Reason contains the principle of the good, by which morality is determined; it also contains the principles of monotheism. But the distinction between the two, which is as real as the kinship, lies in this, that religion discovers to me my neighbour. It reveals the individual "thou" confronting the "I," while ethics only regards the individual in his connexion with humanity as a whole. Sympathy with pain is the secret; it really is the point at which religion emerges from morality, and there arises a new order of experience. But sin as well as pain is an evil with revealing virtue; and it is just because he discovered man to himself through sin that Ezekiel—a true parallel to the ethical Socrates—may be called the founder of religion proper.

Cohen, so far as I can gather, appears to think of God pretty much as Arnold did—a tendency in things, not ourselves, making for righteousness. Perhaps we might define God, in his sense, as the symbol of the assured triumph of the moral ideal. But little is said about personal fellowship, and we are probably not unjust if we conclude that what he offers is religion within the bounds of humanity. The unity and uniqueness of God is the all-commanding thought of Judaism; God alone is true being, and pantheism is not a religion at all. The following is a characteristic passage: "The uniqueness (of God) signifies also the distinction between being and existence (*Dasein*). And this distinction brings out admirably the share which reason has in monotheism. For existence is witnessed to by the senses, by perception. On the other hand it is reason—in contradiction to the senses which lends reality to the existence—that discovers supersensible being, lifts the supersensible to the level of being, singles it out *as* being." Because God is unique, He is unchangeable as well, and there can be no mediation between Him and natural existence. This condemns the idea of the Logos.

For our present purpose we need go no further. Especially in the earlier part of the book, an indefatigable effort is made to work out the dialectical equivalent of each element in Hebrew theology. Thus the logical value of "chaos" is estimated carefully. There is something nobly unbending in the writer's attitude, and many good things are said by the way, but the enterprise as a whole seems to me essentially fruitless. Religion is not in any sense a mystical or *a priori* logic. Hebrew roots and words are not in fact charged with a profound unconscious theory of knowledge, which when spelt out proves to be an anticipation of a difficult nineteenth-century system of philosophy.

But it is a piquant thought that the Jewish mind, so often said (I believe wrongly) to have contributed in its Old Testament stage little or

nothing to philosophy, should now be made the source *par excellence* of rational religion.

The Index, which is specially full, extends to over 80 pages. But misprints are lamentably common.

H. R. Mackintosh.

Studies in Christian Philosophy: The Boyle Lectures, 1920. By W. R. Matthews, M.A., B.D. London: Macmillan, & Co., 1920. Pp. 228.

If this book does not make any material advance upon the presentations of theistic argument recently put forward by Profs. Ward, Pringle-Pattison and Sorley, it may be said to carry on that argument on the lines which the best forthcoming theistic philosophy have laid down. The promise, contained in its title, to discuss the distinctively *Christian* type of theism, is but scantily fulfilled; but as further courses of Boyle Lectures are to be delivered by the author, we may expect the completion of his purpose in a later volume.

The present work on ethical theism may be recommended to readers of Mind because, unlike some essays in theological apologetic, it does not set out from presuppositions such as the philosopher would be inclined to reject as groundless. Its writer eschews the various short cuts to the establishment of theism which assume what is called 'the validity of religious experience,' and the familiar attempts to avoid in one way or another the final appeal to reason. As against the view that theology is but the formulation of religious experience, he holds that there is no such thing as religious experience that is prior to the fashioning of theological ideas, and that whatever is *sui generis* in religious experience is to be sought, not in the affective and conational elements which such experience contains, but in the ideas which are employed to colligate them and to assign them a causal explanation. From this view it follows that theology involves dogma or metaphysics; and it is the tenability of such metaphysic with which philosophy of religion should be primarily, if not solely, concerned.

The author further recognises that in this cognitional aspect, theology is a matter of belief, not of knowledge: of probability, not of implication or demonstrability. And, in this connexion, he might perhaps have insisted more plainly that the theist can afford to make this confession without qualms now that it has come to be generally recognised that all our scientific knowledge of the world presupposes the inductive hypothesis and the venture of faith. The most that can be expected from theism is thus a reasonable ground for its belief, *i.e.*, a basis in such partial knowledge as we think we have: and any philosophy concerned to repudiate theism must be in the same case. Arguing, as I understand him, on these lines, Mr. Matthews proceeds to maintain that theism is to-day a 'live option,' and to compare its reasonableness, as an interpretation of the world, with that of other current alternatives such as absolutism, naturalism and pluralism. His examination of these rival options is but cursory; but if it dismisses them somewhat facilely on that account, it at any rate serves to exhibit clearly the characteristics of theism. The same purpose is furthered by the lectures on divine personality and the idea of creation. But the most important link in the chain of theistic argument, which as a whole one may best describe as cumulatively teleological, is supplied by considerations concerning human morality. Mr. Matthews assigns a prominent position to arguments based on such considerations; but he aims at more than deriving from them additional strength for a cumulative teleology. As I have already offered criticism of these several moral arguments in another review, I will here say no more than that none of the

various attempts that have been made to show that theism is the necessary presupposition of the objectivity of moral truths or of ethical ideals seems to me to be free from fallacy, and that the author's argumentation, like that of other recent defenders of theism, is weaker rather than stronger for trying to extract more evidence for theism from the sphere of values than is furnished by the fact that the world is so constituted as to be instrumental to the acquisition of the moral status and to moral progress. The theist of to-day is indeed seldom, if ever, content with this modicum of 'moral proof'; but I think that his valour, in fighting so lightly armed, would prove the better part of his discretion.

F. R. TENNANT.

Pantheism and the Value of Life, with Special Reference to Indian Philosophy. By W. S. URQUHART, M.A., D.Phil. London: Epworth Press, 1919. Pp. 732.

This work was originally submitted as a thesis for the degree of D.Phil. of Aberdeen University. It is divided into three books and an Introduction of fifty-four pages. Book I. (pp. 57-514) deals with Pantheism and the Value of Life in Indian Philosophy. Book II. (pp. 515-580) treats of Pantheism in Western Philosophy. Book III. is devoted to recapitulation and generalisation. The author says in the preface, "I should esteem it a favour if attention were mainly directed to the Introduction and Books I. and III, very specially to Book I. which deals exclusively with Indian Philosophy". On the next page of the preface he tells us the object which he has in view in writing this work: "At times there seems to have been a slight tendency both to underestimate the value of Western philosophical and religious contribution and to overlook certain deficiencies in Indian speculation which near and constant contact with the peoples of India makes abundantly evident. My own opinion is that a radical transformation of Indian thought will be necessary if India is to advance mentally, morally, and religiously, and my main object in this discussion is to show, with, I hope, all due and sympathetic appreciation of the immense value of Indian philosophy, the necessity for this transformation." In accordance with the author's request I shall limit myself to the main part of his work which deals with Indian philosophy.

The fundamental position of Pantheism is defined by Prof. Urquhart as "the double assertion that God is all that is and that there *cannot be* anything but God". The effect of Pantheism on the value of life is to be judged by deciding whether it leads to pessimism or optimism. True optimism is defined "as that attitude of mind which, in full consciousness of the exact state of things in the world, holds to the belief that the highest values are being and will be realised". Pessimism in its positive aspect is regarded as the belief that the process of the world is towards evil and towards pain, and in its negative aspect as indifference to the need of progress or the denial of its possibility; and these two aspects are so closely related that the latter type often leads to the former.

In dealing with the Vedic religion, Prof. Urquhart holds that the Vedic people believed that the hidden forces of the world were like a fluid and a semi-material reality which the worshipper by means of certain rites and incantations may participate in and thus obtain divine power through a process of physical absorption. This is indeed a very curious doctrine and Prof. Urquhart does not tell us on what authority he considers this as a fundamental Vedic doctrine. We know that the Vedic people believed in the magical force of sacrifices, but we are not aware that this was a semi-material fluid in which the worshipper participated. In a curious way he associates this with an ascetic tinge and discovers the germ of the negative

idea which permeates the whole of Indian philosophy. I do not further find it easy to agree with him in his view that at the root of the Upanishad quest, there was any dark background, or that it was actuated by the growing consciousness of the need of deliverance. So far as I have understood the Upanishads, I have found them characterised by an absorbing perception of truth and the enthusiasm and gladness of this discovery. It never appeared to me that the Upanishads had any pessimistic tinge. All through them is found a gust of joy and truth. It would have been well if each of the chapters of this book could be even briefly discussed, but space is too limited and it is impossible to do justice to a book of over seven hundred pages in such a short notice. But we must say that it is wrong to assert that Vedantism has led to pessimism. It appears almost certain that pessimism crept into Hindu thought from Buddhism, which regarded sorrow, the cause of sorrow, the destruction of sorrow, and the cause of its destruction as the Four Noble Truths. Most of the later Indian systems of philosophy accepted it tacitly or expressly. It is also wrong to think that Vedantism was typical of Indian philosophy, for all the other systems such as that of the Jains, the Sāṃkhya, Yoga, Nyāya, Vaiçeshika, Mīmāṃsā, or the later Vishnuite schools of Yāmuna, Rāmānuja, Madhva, Nimbārka, Baladeva, etc., are either dualistic or pluralistic, and in this sense Vedantism may be regarded rather as an exception than as the model. The idea that the world is sorrowful was shared more or less by all these schools of thought, and it is extremely unfair to associate it particularly with Vedantism. Since the time of Buddhism this idea expressed itself as an attitude of the Indian mind, and no particular system of thought can be made responsible. It must also be said that of all the systems, Vedantism is least pessimistic; nowhere in the Vedānta literature is this sorrowful aspect of the world emphasised half as much as in the pluralistic system of Sāṃkhya Yoga. The whole ambition of Vedānta is to prove that this world has only a secondary, phenomenal, and changeful existence, and that the ultimate truth is pure consciousness, which is also pure bliss. Vedantism did not hold that pain and sorrow did not exist at all; but it held that it had only a secondary phenomenal existence, and must be considered as illusory when compared with the ultimate reality; and it also believed that we were progressing towards the attainment of this highest goal and that we should all attain it. According to Prof. Urquhart's definition of optimism we should like to call Vedantism optimism and not pessimism.

S. N. Dasgupta.

Indian Logic and Atomism: An Exposition of the Nyāya and Vaiçesika Systems. By Arthur Berriedale Keith, D.C.L., D.Litt. Oxford: Clarendon Press, 1921. Pp. 291.

Prof. Keith's book will be warmly welcomed by all who are interested in the study of Indian philosophy. It belongs to a new era of research on Indian philosophy, in which elementary compendiums are not taken as the main guides for the understanding of a system of thought. Many writers have written on the Nyāya system, but in most cases, with some notable exceptions such as the Sadholal Lectures by Dr. Ganganāth Jhā, or the Indian Logic by the late Dr. Vidyabhushana, they limited themselves to the information that could be gleaned from such compendiums as Bhāshāpariccheda, Tarkasaṅgraha or the Saptapadārthī, which though good in themselves are quite insufficient for explaining the position of Nyāya as a system of philosophy. The great merit of Prof. Keith's work is that he has based his exposition on the main works of the Nyāya-Vaiçeshika literature. There may be differences of opinion, with regard to the absolute

correctness or lucidity of his interpretation, but that does not affect the value and honesty of the work that he has executed. Those who are acquainted with the difficulty and abstruseness of Indian philosophical literature will, I think, freely admit that it is only by a series of such honest attempts that we can hope correctly to interpret Indian thought and adjudge its true value and relation to modern philosophical thought. Prof. Keith's scholarly work has certainly advanced the course of Nyāya studies one step further.

The book is in two parts. The first contains only forty-one pages, and gives an account of the Nyāya-Vaiçeshika literature and discusses certain historical questions connected with the subject. The second part is in two divisions, on epistemology and metaphysics. The part on epistemology is divided into six sections, Knowledge and Error, Perception, Inference, Logical Errors, Nature and Authority of Speech, and Dialectical Categories. The part on metaphysics deals with Ontology, Philosophy of Nature, Philosophy of Spirit, and the Existence and Nature of God. In the section on knowledge and error Prof. Keith considers the different Indian views on the nature of knowledge, and contrasts them with the Nyāya view that correct apprehension may briefly be described as that which attributes to an object with a certain attribute the corresponding characteristic, while false apprehension is one which ascribes a characteristic to a thing which has not the corresponding attribute. In the next section he gives us the Nyāya justification of the four means of proof, perception, inference, analogical judgment, and verbal knowledge, as against other views on the subject. He gives us the Nyāya principle of the division of means of proof and says, "Means of proof, in this view, is that which is always accompanied by true knowledge and at the same time is not disjoined from the appropriate organs or from the seat of consciousness, *i.e.*, the soul. . . . The true sense of pramāna thus appears not as a mere instrument of proof, but the mode in which the instrument is used, the process by which the knowledge appropriate to each means of proof is arrived at." The third section deals with error, which "consists in having the knowledge of an object as possessed of attributes which are not in accord with the real nature of the thing". In his chapter on perception he starts with Gautama's definition of it as "knowledge which arises from the contact of sense and organ, when not subject to error, when not requiring further determination and definite," and discusses its relation with Dignāga and Dharmakīrtti's definitions of perception as "correct knowledge free from determination by imagination," and he then deals with the different kinds of sense-contact necessary for perception and its stages as indeterminate and determinate. In the subsequent chapters he deals with inference and the fallacies, and discusses the questions of Praçastapāda's debt to Dignāga. In the part dealing with metaphysics he treats of the Vaiçeshika categories of substance, quality, activity, generality, particularity, and inherence, the doctrine of cause and effect and of negation, and the atomic theory, soul, mind and body, and the proofs of the existence of God.

I do not, however, think that Prof. Keith has in all places correctly interpreted the Nyāya view. It would have been profitable to have discussed some of these here but space is too limited. I shall, however, give one or two examples. On page 69 Prof. Keith says, "The self is all-pervading consciousness . . . ," but this is inexact, for according to Nyāya, the self is all-pervading, but it is not consciousness. Consciousness is associated with it as a result of suitable collocations. Thus the Nyāyamañjarī says (p. 432): "The *ātman* is conscious through association with consciousness (*cit*). We do not regard anything as consciousness other than the manifestation of objects." Again on page 72 he describes indeterminate perception as "that which gives the bare knowledge of the class-character of the object".

Whatever may be the case with Gangeça, this is not the early Nyāya view, which held that also particulars were perceived at the first stage. Tātparyyatīkā, page 91 ; Nyāyamañjarī, page 95 ; Nyāyakandalī, page 189.

S. N. Dasgupta.

The Mneme. By R. Semon. Translated by L. Simon. London : G. Allen & Unwin, Ltd., 1921. Pp. 304.

Most biologists are inclined to interpret the more developed and more differentiated manifestations of life in terms of the less developed and less differentiated. They would describe a hen as a modified egg rather than an egg as an undeveloped hen. This tendency has its origin, one suspects, partly in the belief that what comes first in time comes first in logic and partly in an analogy with the physical sciences, where the aim is to describe every process as a special case of the simplest and most general laws. The analogy with physics is usually misleading and the historical argument is certainly false. Physiologists as a rule realise that, if you want to understand the mechanism of life processes, it is best to start the investigation with the most highly specialised and differentiated organ you can find, something such as a muscle or a nerve that has been modified to perform one particular function. When something has been elucidated in this case the knowledge is likely to throw light on the more difficult cases of processes in unspecialised and undifferentiated tissues, whose apparent structural simplicity conceals a great complexity of function. It was long believed that a study of the Central Nervous System would solve some of the problems of psychology, but it is probably nearer the mark to say, that of the small amount of light that has been shed on nervous functions a large part comes from psychology. Nearly all that is said about brain processes would be unintelligible but for our introspective knowledge of mental processes.

The late Prof. Semon seems to have been one of the first biologists to realise that an exclusive study of the primitive life processes was not likely to lead anywhere, and to suggest that what we know of the most highly developed living functions might help us to understand the less developed. He attempted to raise biological speculation above the futile wrangles of Mechanists and Vitalists, Weismannists and Lamarckians ; to try and provide a little bread in place of all these small pebbles. It is idle to quarrel with the details of his exposition of his views, though it is not difficult to do so, and idle to cavil at his barbarous terminology unless we can substitute something better. What we certainly ought to recognise and to lay stress on is his general outlook on the classical biological problems. He has made a bold attempt to provide a constructive and unifying theory in terms of which we can regard the processes of reproduction, growth and development. The test of his views will be whether the facts as they accumulate can be ordered in terms of his theory and whether the theory bears fruit in suggesting fresh methods of investigation. Successful experiment and correct observation in these matters is so difficult that the testing of a general theory is of necessity a slow business.

We all of us know how past experience modifies present experience and it is obvious that this process of learning by experience is one of the salient facts about our mental life. We also know that we can observe in all living creatures physical reactions to physical stimuli which are the analogues of our mental reactions and their concomitants in our own bodies. Good evolutionists must believe that minds and bodies and particularly minds and nervous systems have grown up in close conjunction. Now Semon holds that this process of memory that is obviously characteristic of minds and brains is characteristic of all living cells and

governs all their relations with the outside world and with one another. In particular he attributes the special character of growth and inheritance and the evolution of species to this process. The phenomena of growth and reproduction are so staggering and so miraculous that it hardly seems fair to expect any theory to explain them. But as far as one can see Semon's theory does fit in pretty well with what is known and should stimulate further investigation.

Only a short time ago, when Weismann's influence was supreme, it was customary to believe that very little you could do to an organism would alter the germ cells in any way, and that no modification to the organism could modify them in the same direction. It was said that it was inconceivable that the germ cells could be influenced in this way and that the experimental evidence was all against it. Since the days of Weismann, and since the first edition of this book even, the balance of evidence has been slowly shifting in the other direction, in favour of the possibility of the inheritance of acquired characters. As might be expected, it is only in certain ways and under certain conditions that the germ cells can be affected in the right way, but it does seem to happen. This is really a considerable triumph for Semon's views.

The orderly and inevitable course of the process of growth is at present a complete mystery, but here again there is hope that Semon's views may shed some light. Certainly other theories have shed nothing but deeper shadow.

Altogether the time is ripe for a reasonable consideration of Semon's theories. As they have not apparently received much notice in English-speaking countries the appearance of this clear and readable translation seems to be opportune.

A. D. R.

Espèces et Variétés d' Intelligences, Éléments de Noologie. By François Mentré, Docteur ès Lettres. Paris: Bossard, 1920. Pp. 294.

The author, who in his work on *Les Générations Sociales*[1] studied the historical influence of groupings united by a particular mentality, here, with the same learning and suggestiveness, is working towards the development of a science which shall be, so to speak, a natural history of the species or families of intelligences. The name noology is derived, I gather, from Ampère; but the author traces the point of view from Pascal downwards, principally through French psychologists and critics. (Ostwald is an exception, and I suppose also Wechniakoff, who appears, however, to have written in French. I regret that I am not acquainted with his work.)

The researches, which are traced at length, tend to result in triple classifications. That which originates with Pascal (p. 77), and is practically repeated by Poincaré (p. 116), and Duhem (p. 133), summarised p. 140 —a classification of *savants* only—is in its latest form (Duhem) "Esprits rigoureux, esprits amples, esprits justes (Pascal's esprits de finesse)"; which, as I gather, represent respectively the capacity for rigorous unilinear deduction, for imaginative intuition from a conspectus of data, *e.g.*, of figures in geometry (the "ample" mind is also "feeble"; the "rigorous" mind is "strong"), and for general appreciation in matters of feeling which adds persuasiveness to abstract reasoning. After further discussion, in which, principally on the authority of A. Binet, the "praticien," evidently a favourite with the writer, is added to the list, we have an elaborate tabular form (p. 278) which gives three fundamental

[1] See notice in New Books, Mind, July, 1921.

types or genera of Intelligences; the Praticien (leading example, an extraordinarily precocious and skilful laboratory assistant described by Binet), the Contemplatif (Imagination on an emotional basis), and the Méditatif (the Scientific mind). The two latter genera absorb Duhem's triple division, and the three are supplemented by a number of hybrids, derivations, and deviations. The author claims a practical value for his science, both in the application of moral rules and in teaching. In both we must in future reckon with a real existence of different types and adjust our action accordingly (pp. 284-285 and note). A long review might be written on the detailed suggestions drawn from many great writers, St. Beuve, Taine, who had a doctrine of a faculté maîtresse (p. 84) which gives the mind a sort of spurious unity, Paulhan and others. But in a limited space perhaps the best thing I can do is to raise a question of principle which affects the root of the new science.

I speak with the utmost diffidence in presence of so profound a student and, I presume, so experienced a teacher, as the author. But one can give only what one has; so I mention my difficulty. I do not doubt that these types of *minds* are found; nor that the study of them is important. But I do wonder whether the idea of a natural history of species or families of *intelligences* (character is strictly ruled out) is philosophically sound. A member of a natural species, including its psycho-physical endowment, is what it is, and though it changes throughout its life, yet its life-history is almost a datum. You can safely co-ordinate it with others, and write down its actual affinities. But for a human being the corresponding data are no more than starting-points for the intelligence. Intelligence is essentially thought; and thought is, in principle, in relation with the entire real universe, which it may approach from any starting-point, and you cannot tell how far it may reach therefrom. Thus you get the idea of a normal or central development, in which all sides of reality tend to assert themselves, and the beings of marked species, instead of each being distinct after his kind, tend to unite many features, on pain of appearing defective. Paulhan roundly says there are no natural species of intelligences (p. 100); Binet says his model praticien is incomplete as a mind; the author protests (p. 218 and note). Duhem says the national spirit is not traceable in the greatest minds (Newton, *e.g.*, and Gauss), and it is in ordinary mentalities that you get monstrosities "tandis que les grands génies réalisent l'idéal unique du genre human" (pp. 129, 130, see the author's note, which points out that this idea treats mental species as *deviations* round a uniform ideal type). The immense faculty of adaptation shown by the human mind as it goes through life, *e.g.*, in adopting a profession, demonstrates what various resources are common to intelligences as such. The author's ideal species is the pure type; but his tabular form shows hardly any such. And of the antithetic terms, proposed as titles of exclusive types, most have been rejected as not reciprocally exclusive. The species, even when morbid, are only cases of predominant features, and I should urge, following Duhem, that the greatest minds are the most many-sided. The author's account of Plato would not lead one to surmise that a great critic (Walter Pater) has said of him what Gautier, as the author reminds us, said of himself; that he was one for whom the external world really existed [1]. I doubt, then, the whole conception of pure natural species of intelligences, because an intelligence has open to it the whole reality, it is always in a high degree many-sided, and you never can tell what line within reality it may pursue.

BERNARD BOSANQUET.

[1] Pater says "visible," *Plato and Platonism*, p. 114.

The Essentials of Mental Measurement. By WILLIAM BROWN and GODFREY H. THOMSON. Cambridge University Press. Pp. viii + 216. 21s. net.

This is a new and greatly enlarged edition of a book by Dr. William Brown, published in 1911, which was again an expansion of a booklet reviewed by the present writer in MIND, July, 1911. The new chapters, writes Dr. Brown, are wholly the work of Dr. Thomson. They deal with the Elementary Theory of Probability, Skewness and Heterogeneity in Psychophysical data, the Influence of Selection, the Theory of General Ability and a Sampling Theory of Ability.

These additions, and other revisions, greatly enhance the value of the book, making it a much more complete account of recent developments in the application of mathematical calculations to the study of mental abilities and mental performance. The elementary theory of probability, and the methods employed in various ways of measuring scatter, reliability, etc., are discussed with admirable clearness.

The chief interest in the book to psychologists however will probably lie in the extended treatment of correlation in Part II. and especially in the full and lively discussion of the controversy which has been centred round the problems of the hierarchy of correlation coefficients, and the proof through that of a "general factor" in all mental performances.

The controversy, though strenuous and emphatic enough in its criticism of Prof. Spearman's position, is preceded in the preface by a warm acknowledgment of the "epoch-making" significance of Spearman's work in the application of correlation to psychology. Dr. Thomson assails, on several grounds, Spearman's view that the presence of a general factor is proved by the hierarchy shown by sets of correlation coefficients. He urges that while Spearman quite rightly asserts that a general factor would produce a hierarchical order among coefficients, he has no right to reverse the argument and conclude that the presence of hierarchical order proves the existence of a general factor. Also, that while a series of group factors may give no hierarchy, yet they will do so if the group factors overlap. And in support of the view that the matter is more complicated than the theory of one general ability factor would suggest, he points to other widespread factors which others claim to have found, *viz.*, Maxwell Garnett's "cleverness and purpose" factor and E. Webb's "persistence of motives" factor.

Furthermore Dr. Thomson has produced a series of correlation of coefficients by experiments with dice, with conditions corresponding to group factors, the arrangement of the group factors being decided by the chance drawing of cards from a pack. And these correlation coefficients gave an almost perfect hierarchical order.

Dr. Thomson even goes so far as to say that a hierarchy is the "natural" relation among correlation coefficients on any theory whatever of the cause of the correlation, though, I take it, he would not say this in reference to correlations of orders arranged on the mere basis of chance draws, without even group factors being involved.[1]

Dr. Thomson also uses his theory of groups of mental factors to explain apparent "general ability". The usual absence of a tranference of training effects from one activity to another activity (except to a very similar one) he explains by suggesting that this specific improvement in a given

[1] Dr. Thomson's reply to an inquiry of mine on this point confirms my impression that he did not mean to suggest, as he has been understood to do by another reviewer, that mere chance would produce a hierarchy in the absence of all definite factors causing correlation.

activity is due largely to improved "team" work among the elements of the group, and that when another group is formed partially of the same factors, the improved co-ordination is lost, just as, when members of a football team which has improved as a team are scattered among several teams, the value of the team work training is largely lost.

The present reviewer would not presume to decide the problems of higher mathematics at issue between Profs. Spearman and Thomson. Indeed it is evident that even the expert mathematician must walk warily in interpreting correlations. It may be added, however, that from the psychological point of view it unhappily still remains true, as the present reviewer wrote in the review of Dr. Brown's original booklet, that "the doubtful accuracy of mathematical formulæ is scarcely more serious to the statistician than the vagueness and variability which still remain in the way of measuring some of the capacities among which correlations are sought". Mental tests have been vastly developed and systematised since 1911, but variations in the modes of application and in the interpretation of results are still responsible for considerable variations in correlation coefficients obtained by different workers.

That is, however, not the main concern of our authors. To the treatment of the problems involved in advancing the mathematical aspect of the work and in the co-ordination of mathematical results with psychological theory, they have in this book made a very notable contribution.

A very extensive bibliography is added.

C. W. VALENTINE.

La Musique et la vie Intérieure: Essai d'une Histoire Psychologique de l'art Musical. Par LUCIEN BOURGUÈS et ALEXANDRE DENÉRÉAZ. Paris VI., Alcan, 1921. Pp. xi, 586. (7½ × 10 in.) 50 francs net.

This large work is illustrated with 983 musical examples, eighteen figures, nineteen tables showing the musical influence of previous composers upon a given great master and his influence upon his successors, and a plate giving the dynamogenic curves of a number of pieces of music as the authors feel them. It could hardly be called an indispensable work, but it is certainly one that every serious student of music should see. Intimate knowledge and enthusiastic love of music are evident on every page, and the style is as musical as the words of discursive thought may be. The writers' minds are evidently permeated with the problems of music and they are eager to further their solution.

But the science they have at their command is quite inadequate for the task. In character it is post-Helmholtzian, as the constant recourse to harmonics shows, but it is nothing more. It is the 'science' of music that a student of twenty to fifty years ago might have imbibed at a practical school of music, with a dash of 'kinæsthesis,' cenesthesis, and tactile sensations of the tympanum to give it relish. A law of diffusion of stimulus in the brain ascribed to Alexander Bain of blessed memory—whose ghost still walks some ancient galleries of thought in France—gives us dynamogeny; and pleasure is dynamogeny. Féré is called upon to establish that rising pitch gives more, and falling pitch less of this dynamogeny. Such motor elements we learn are all that the composer can put into music—no pictures or ideas or the like. Even the semi-circular canals are not forgotten as a modest idea to explain the puzzling trinity of parts in common chords. Every harmonic in a tone is supposed to have its own series of harmonics again: the authors have even reckoned out these harmonics of harmonics and have totalled them to 15 dos, 12 sols, 10 mis, etc. Things are bad enough as it is, but this welter of sounds outbabels Babel.

The musical analysis and discussion of the more complex problems are often good on the 'psychological' side and always stimulating to reflexion, even if only as a counter-irritant. As an instance the problem of the difference between major and minor keys may be mentioned. But the theory of resolution, by which every note is held to move to its successor by step of a fourth or fifth is absurd; for it requires the voices to cross in the most hopelessly irregular way. It is equally absurd to suggest that every dissonance is reducible to one or more 'rectified' tritones—the tritone b-f', for example, is supposed to resolve by b moving to e' and f' to c'. Surely the 'conventional' diatonic leading of the voices is not merely an external appearance that is saved from being purely illusory merely because it is helpful to vocal execution. In this fundamental type of error, however, the authors by no means stand alone.

Writers on music only too frequently blind themselves to basal facts by ascribing them to the difficulties of vocal execution, rejoicing the while in the fact that these difficulties no longer tyrannise over musical composition. Nowadays every note can be played with equal ease on many instruments. They forget to notice that the voice has no greater difficulty in singing any one note than another. The difficulty for all instruments is to play or rather to use musically some notes after certain other notes. This musical difficulty—quite apart from any physical difficulty, say of a great leap, that may exist—is largely a matter of ear; and the ear's difficulty is the difficulty the mind feels in passing from certain notes to some others. And the difficulty of that mind-passage is there whether you listen to an electric pianola or to your own voice. It helps to form the æsthetic value of the work.

The second larger half of the book, characterising the great masters of music, is full of interest, and—with various omissions—would in itself make a stimulating volume of musical analysis.

HENRY J. WATT.

A Critical History of Greek Philosophy. By W. T. STACE. London: Macmillan & Co, 1920. Pp. xiv, 386.

When one has said that Mr. Stace's work is well-meant, one has said about all that there is to say for it. The execution certainly does not warrant the description of the book on the title-page as a "critical" history. The author's method is to boil down Zeller, introducing from time to time, in the earlier chapters, a few modifications from Burnet's *Early Greek Philosophy*. The part of the book for which *Early Greek Philosophy* is not available is mainly pure Zeller. Mr. Stace regards himself as thus, in the main, reproducing what he frequently calls "the traditional" view. Unfortunately on some very important matters, such as the real significance of the figure of Socrates, and on a good many matters of secondary moment, his "traditional" view does not mean that which has the support of continuous ancient tradition going back to men who were in a position to know the historical facts, but merely the view which deference to the authority of Zeller made customary in the nineteenth century, a very different thing. A more serious defect is that Mr. Stace never thinks it necessary to tell his readers what available sources of evidence there are for the various parts of his narrative, and only rarely indicates the grounds on which he arrives at his own conclusions about debatable questions. The accounts of the Sceptics and Neo-Platonists are so very misleading that one suspects the author in this part of his work at any rate to be epitomising and sitting in judgment on what he has never read.

A. E. TAYLOR.

La Vita dello Spirito. By ARMANDO CARLINI. Florence: Vallecchi, 1921. Pp. 225.

L'Azione. By MAURICE BLONDEL, translated into Italian by ERNESTO CODIGNOLA. Florence: Vallecchi, 1920. Vol. i., pp. 284; Vol. ii., pp. 371.

Signor Carlini's book had its origin in a course of lectures, delivered at the University of Pisa in 1920-1921, and intended to expound some of the concepts of present-day idealism, and show their greater concreteness and more realistic character as compared with the older idealisms. If anyone wants to be introduced straightway into the motive, aim and direction of the philosophical movement,—perhaps best described by linking together four names, Bergson—Blondel—Croce—Gentile, he will find no better propaedeutic than this. The author, whose valuable work on Locke we noticed recently, gives us not a historical or biographical account of present philosophers and their theories, but a lucid exposition of the leading concept which underlies their different expressions—*élan vital, action, spirito, atto puro*—a new concept of history.

The importance in this connexion of Blondel's concept, based like that of Kant's *Practical Reason* on the Moral Law, is especially emphasised by Signor Carlini. To most of us Blondel is no more than a name. His book *L'Action*, recognised when it appeared in 1893 as a philosophical work of the first order, a second edition being almost immediately called for, unfortunately aroused such violent animosity in Catholic circles that the author withdrew it, and so effectually that copies are now excessively rare. (The Bodleian is believed to be the only public library to possess one.) Against the author's wish, though not we understand actually in defiance of his authority, a translation of it is included in the new series of Philosophical Manuals, *Il Pensiero Moderno*, now in course of publication by Messrs. Vallecchi of Florence. The translator Signor Codignola is also the general editor of the series. He says in a note: "I have been induced to undertake this translation in the firm hope that to-day at last, both without and within the Catholic church, our minds are better disposed to understand one of the most powerful, most religious and most profoundly human, voices in the whole history of philosophy".

H. WILDON CARR.

Contribucion del Lenguaje a la Filosofia de los Valores. By JUAN ZARAGÜETA BENGOECHEA, with a *Contestación* by E. SANZ Y ESCARTIN, Count of Lizarraga. Madrid: Jaime Ratés, 1920. Pp. 221.

The idea underlying Senor Zaragüeta Bengoechea's work is excellent and worthy of all applause. There is much light to be thrown on philosophic problems in general, and on the problem of values in particular, from the study of language. For language reveals what ideas have so insistently forced themselves upon human attention that words have had to be coined to express them. It attests therefore the use and usefulness of an idea. It proves also that common thought is often ages in advance of philosophic 'reflexion'. For example European philosophy did not discover the problem of the Self before Descartes; but European languages had employed personal pronouns from the first. We may be sure then that a philosophic problem recognised by language is a real problem. We may take it also that though language is plastic and to be moulded by those who master it, which is the reason why the intellectual development of a people can be deduced from its language, its initial testimony is honest

and uncorrupted by sectarian prejudice. Decidedly then the exploration of language should be one of the first steps in a philosophic inquiry. But the exploration of language is apt to be sterile and even misleading, if it is confined to a single language: for grammatical idioms are then easily mistaken for necessities of thought. Languages should be studied comparatively to extract their thought-contact: it is then found that it is precisely the differences and *lacunae* in the various languages, taken in conjunction with the differences in the thinkers that use them, that are most illuminating. His omission to compare the Spanish vocabulary of valuation with that of other tongues is perhaps one reason why Senor Zaragüeta's study is somewhat disappointing and leads to no very definite conclusions. He has also cast his net too wide, making (somewhat cursory) mention of all terms more or less directly connected with the human habit of valuation. He would probably have elicited more if he had concentrated upon the primary and essential values and studied them more profoundly and in connexion with their equivalents in other languages. For the rest his attitude is that of a Spanish ecclesiastic, competently trained in the Louvain School of Philosophy under Cardinal Mercier, and the occasion for his work was his reception into the Royal Academy of Moral and Political Sciences.

F. C. S. Schiller.

Erlebnis und Wissen, Kritischer Gang durch die englische Psychologie. By Hans Ruin. Helsingfors: Söderström & Co., 1921. Pp. 303.

This work consists of a rapid, not to say cursory, survey of English psychology from Bacon and Hobbes to Bain and Spencer, with a chapter of 'parallels,' touching (lightly) on Herbart, Fechner, Lotze, Wundt, Taine, Bergson, and James. It aims at showing that all attempts to represent the mind as passive and to dispense with the self have failed, and are bound to fail. There is nothing very new in its criticism of associationism, and it also draws the conventional inference (apparently under the inspiration of Husserl) that epistemological criticism is the presupposition of psychology, and the only possible alternative to associationism. The author, however, diverges from the conventional apriorism by combining this conclusion with a preference for the *Erlebnis* of immediate experience over reflective thought, and endeavours (faintly) to attribute a similar preference to Kant. It has evidently not occurred to him in the first place that the antithesis of associationism and apriorism breaks down in so far as Hume's psychology was a presupposition of Kant's problem, and, secondly, that there is no valid inference from the falsity of associationism to the truth of apriorism, because an alternative to *both* is thinkable and tenable. For since both are (predominantly) intellectualistic, their joint fashion of describing psychic processes has merely to be given up, to render it perfectly possible to account *in psychology* for all the puzzles that were supposed to demand a *μετάβασις εἰς ἄλλο γένος*, and a recourse to apriorist epistemology. In other words, an activistic, voluntaristic, psychology is possible, which is much more radically and faithfully empirical than the old 'empiricism,' and free from its logical difficulties. Indeed this line of thought would probably be much more congenial with the author's aim and temperament than the merely negative attitude of apriorism, which regards as spiritually valuable whatever it cannot understand: but he evidently knows very little about modern pragmatism. He just alludes to it, includes a few of James's books in his bibliography, and criticises his account of the self; but he has evidently overlooked the epistemological bearing of the famous last chapter in the *Principles of Psychology* and the psychological importance of starting from a psychic continuum instead of a heap of

'sensations'. Finally it may be noted that the work, though appearing in German, is evidently a translation (presumably from the Swedish), effected with the aid of the dictionary. This sometimes leads to curiosities, as on page 104, where the thought to be conveyed is that 'Reid arbitrarily cut down the sphere of consciousness'; unfortunately the word used does *not* mean 'circum*scribe*'.

F. C. S. Schiller.

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VII.—PHILOSOPHICAL PERIODICALS.

British Journal of Psychology. Vol. xi., Part 2. January, 1921 **Henry Head,** in a paper on "Disorders of Symbolic Thinking and Expression," records observations on patients suffering from brain lesions. These observations and tests led him to conclude that a unilateral lesion of the brain, affecting the use of language, disturbs a number of psychical processes, which cannot be grouped under such headings as "speech," "reading," "writing," "motor," or "sensory" activities, or any other *a priori* categories. He applies to them the term "symbolic thinking and expression," because they consist mainly of the use of symbols in language and in thought: but it is symbols used in a particular manner which are affected, and not all symbolic representations. Yet the term is not a definition, for this group of functions cannot be comprised within any single general conception. The various manifestations of aphasia and allied disorders of speech cannot be explained by destruction of sensory images. These may remain intact, although they cannot be used voluntarily as part of the symbolic mechanism of language. Finally Dr. Head concludes that his researches show that the two aspects of meaning involved in the use of symbols may be separated by suitable lesions of the brain. **C. Lloyd Morgan** contributes an article on "Psychical Selection: Expression and Impression". He discusses especially the psychology of sexual attraction of birds, regarding the display of the male as instinctive in part at least, there not being necessarily any intention to produce an effect; the "selection" by the female is regarded not as a type of choice, but as an inevitable response to the more powerful stimulus. Expression is a sub-species of behaviour differentiated from other modes of behaviour in that its utility lies in the impression it produces on some other organism; while the impression is a sub-species of presentation differing from other presentations in that what is presented is expressive behaviour on the part of some other organism. That the same expression in the behaviour of animals seems to us to produce in different situations very different behaviour on the part of the recipient of the behaviour impressions, is probably due to the fact that we consider these expressions in isolation from their context, the animal in reality being "responsive rather to the total presented situation than to details". In the "Nature of Verse" **E. W. Scripture** describes an experiment which he undertook to settle a dispute between two professors of Greek at Harvard and Yale as to the nature of English verse, the former saying that it consisted of long and short syllables, the latter that it was composed of loud and weak syllables. By appropriate apparatus for recording vibrations due to speech Scripture obtained records from which he concludes that the rhythm of verse depends on loudness (or softness), length of syllable, and clearness of enunciation and pitch, the stressed syllables being better enunciated and of higher pitch. **W. Whately Smith** in his "Experiments on Memory and Affective Tone" estimated the affective value of words by the psycho-galvanic reflex, the reaction time, and by Jung's reproduction test, the first proving "by far the most delicate test of affective tone". He concluded (1) that

so far as the affective tone detected by the psycho-galvanic reflex is concerned, its influence may be exerted in two diametrically opposite directions; the fact that a given word evokes well-marked affective tone may lead to its being better remembered than a less intensely toned word, or may lead to its being forgotten more quickly. (2) The kind of affective tone which is shown by Jung's reproduction test tends to impede the remembering of the words concerned. Affective tone which helps remembrances he calls "positive," that which hinders remembrance he calls "negative" tone. The author explicitly leaves on one side the relation of positive and negative tone to pleasant and unpleasant tones. Other articles are as follows: **Frank Watts,** "The Outlook for Vocational Psychology"; **Godfrey H. Thomson,** "Report on the Selection of Children for Higher Education at Hamburg"; **Carveth Read,** "Critical Notice of A. F. Shand's 'The Foundations of Character'". Part 3. April, 1921. In an article on "Infantile Psyche, with special reference to Visual Projection," **David Forsyth** discusses the vivid visualisation of young children, amounting as it does at times to hallucination. He suggests that "a mere infant is unable to appreciate the essential difference between objects which are seen in the outer world and those which are the product of its own mechanism". The reality of these latter is emphasised by the reality of the emotions which give rise to them. Night fears are not due to hallucinations, but awakening fear rouses memories associated with fear and these memories are then projected as hallucinations, which are regarded as the cause of the fear. (In a later paragraph, however, the writer attributes fear of the dark to visual hallucinations.) The paper discusses also the relation of these characteristics of infantile mind to Freud's pleasure and reality principles, to magic and the belief in spirits and demons, and also deals with rationalisation in connexion with magic. **F. C. Bartlett** contributes an article on "The Functions of Images". The function of images was studied in the recall of pictures, and in the association of signs with words. It was found that images reinstated mainly by the aid of affective cues were vague and unanalysed, the function of affection in reproduction being "to reinstate a situation rather than a specific object". The occurrence of definite visual imagery tended to set up an attitude of confidence in the accuracy of the reproductions, both of pictures and of signs, though this confidence was often unjustified. Reliance on visual imagery resulted especially in the forgetting of order of succession; those who relied on vocalisation of words were very accurate in their memory of order. It is suggested that the primitive sensory image is vague and schematic—contrary to the supposition that it is definite and becomes vague and general through the repetition of varying impressions. One function of the image seemed to be to reinforce the tendency to prompt response; its close connexion with emotion helped to supply confidence, the substitution of words leading away from the "reinstatement of material in close relation to emotions". The other articles in the number are as follows: **H. Hartridge,** "A Vindication of the Resonance Hypothesis of Audition"; **J. C. Flügel,** "A Minor Study of Nyctopsis"; **Ll. Wynn Jones,** "A Method of Measuring Nyctopsis, with some Results;" **S. M. Haggard,** "A Case of Somnambulism"; **F. C. Bartlett,** "Critical Notice of C. Read's 'The Origin of Man and of his Superstitions'"; **F. C. Bartlett,** "Critical Notice of W. McDougall's 'The Group Mind'"; **T. H. Pear,** "Critical Notice of W. H. R. Rivers's 'Instinct and the Unconscious'".

JOURNAL OF PHILOSOPHY. xviii. (1921), 11. **M. T. McClure.** '"Crises" in the Life of Reason.' [Traces "the natural history of reason" in the philosophy of Santayana.] **M. Picard.** 'The Co-ordinate Character of Feeling

and Cognition.' [Concludes that "the case for feeling as a co-ordinate aspect of conscious activity rests partly on the universal presence of one or both of the affective qualities in all conscious states, partly on a certain independence of cognition manifested by feeling in the production of moods".] **F. R. Bichowsky.** 'The Basic Assumption of Experimental Science.' [Is merely that the data of science "be organised into a logical system the laws of which can be tested".] xviii., 12. **W. H. Sheldon.** 'Prof. Dewey, the Protagonist of Democracy.' [Reviews Dewey's '*Reconstruction in Philosophy*,' declaring that "his programme is a revolt against superiority," and defending "the spectator view of knowledge" by urging that the great philosophers "wrote on ethics and politics and tried to influence the society of their day". Prof. Sheldon's attitude explains perhaps why Prof. Dewey finds Peking a healthier place than New York; but neither party to the dispute seems to question the assumption that the American system is what it is called.] **J. J. Toohey.** 'The Distribution of the Predicate.' [The traditional doctrine is confuted by the validity of the partial inverse of an A proposition.] **G. Boas.** 'A Source of the Plotinian Mysticism.' [Besides its empirical root in the mystic vision it has another in the principle that only the like knows the like. Hence, to know, the mind must intuitively apprehend its object.] xviii., 13. **F. J. E. Woodbridge.** 'Mind Discerned.' [Concerning the relations of "mind in the transcendental sense, the sum total and mere fact of existence," and "the mind which is studied in psychology". The former is a 'type of structure'.] **M. Picard.** 'The Unity of Consciousness.' [Argues that C. A. Strong's '*Origin of Consciousness*,' has shown that "there is no such unity".] xviii., 14. [Not received.] **R. B. Perry.** 'The Cognitive Interest and its Refinements.' **K. S. Guthrie.** 'Rejoinder to Mr. Boas' attack on Guthrie's Plotinus.' xviii., 15. **S. L. Pressey.** 'Empiricism versus Formalism in Work with Mental Tests.' [Replies to Ruml in xviii. 7 and deprecates excess of statistical elaboration.] **A. J. Snow.** 'A Note on the Rôle of Mathematics in Physics.' [It is "not that of a discipline independent of facts, and mathematics does *not* give us truth *a priori*".] xviii. 16. **J. M. Fletcher.** 'Geneticism as a Heuristic Principle in Psychology.' [Geneticism is historicism in psychology, and easily leads to a confusion of history and valuation. It is open to six objections: (1) Continuity and the non-occurrence of novelty is a rationalistic logical postulate; (2) The tracing of past history is always arbitrarily arrested at some point; (3) History is not the sole determinant of value; (4) Historical continuity is compatible with radical change in function and meaning; (5) Like 'analyticism,' geneticism falsely assumes that it can get back to a 'simple'; (6) Whether or no science is bound to ignore values, it must not confuse values and facts.] **E. L. Schaub.** The Annual Meeting of the Western Division of the American Philosophical Association. **D. Drake.** 'Philosophy as Work and Play.' [Philosophic problems are divisible into those which "have appreciable practical bearings" and "those whose solution would make no or slight difference to practice". The latter are 'play' and include metaphysics, God, freedom and immortality; they are justifiable amusements, though it might be well if philosophers would devote a little more attention to the rational ordering of human life.] xviii. 17. **W. E. Ritter.** 'The Need of a New English Word to Express Relation in Living Nature,' I. [Seeing that "the Latin *gradior* upon which 'integration' is founded" (*sic!*) is unsatisfactory as the correlative of 'differentiation,' 'conferentiation' is suggested.] **T. L. Kelly** and **L. M. Terman.** 'Dr. Ruml's Criticism of Mental Test Methods.' [*Cf.* xvii., 3. Pleads that the assumptions attacked are but the working hypotheses of an infant science.] xviii. 18. **H. B. Smith.** 'A Spirit which Includes the Community.' [Protests, against Sabin in xvii., 26, that "wherever there exists a conflict between points of

view, there there is a mind".] **W. E. Ritter.** 'The Need of a New English Word to Express Relation in Living Nature,' II. [Illustrates the need from the neuromuscular system, sex, love, and the American Constitution.] xviii., 19. **C. I. Lewis.** 'The Structure of Logic and its Relation to other Systems.' [Classifies logics as: (1) the 'traditional,' which claims to be *both* formal *and* "concerned with the actual modes of right thinking"; (2) the 'modern' which repudiates formalism, just *because* it concerns itself with "the actual processes of right thinking"; (3) the 'new,' which, to be formal, "*renounces* all attempts to portray" the actual discovery of truth. The third does not regard deduction as a method of proving truth and regards as nugatory attempts to establish incontrovertible truth by deductive procedures. For it 'logically prior' only means 'deductively more powerful' or 'simpler'. The necessity of 'presuppositions' is often shown to mean only lack of imagination or ingenuity. The possibility of a plurality of beginnings for a system and of a plurality of equally cogent systems is recognised. All this holds of the fundamental laws of logic also. They too cannot be proved, for all their 'proofs' turn out to be circular. "That the denial of a proposition leads to its reaffirmation, by no means establishes its truth." This is true also of *false* propositions. A bad logic can be constructed, "in which reasoning badly according to bad principles we get consistently bad results". "A *good* logic *must* be circular"; but so is "*all* logic and pseudo-logic". Illustrations follow, *e.g.*, it is *not* self contradictory that 'there are no propositions,' and the ambiguities of 'presuppose' are exposed. In short "no deductive system, logic itself included, can justly claim to be demonstration of certain truth from indispensable first principles," and the claim of "the traditional *a priori*" is baseless.] **D. W. Prall.** 'The Aesthetic Heresy.' ["The only source of value is a mind satisfied with a particular object in its contemplation, and the only test of value is such satisfaction. All value is thus essentially aesthetic."] xviii. 20. **H. M. Kallen.** 'America and the Life of Reason.' [A brilliant paper on Santayana's *Character and Opinion in the United States.*] **E. B. Holt.** 'On the Locus of Teleology: A Rejoinder.' [To L. J. Henderson, *cf.* xvii., 16 and 14.] xviii., 21. **C. E. Ayres.** 'Instinct and Capacity: I. The Instinct of Belief-in-Instincts.' [Makes fun of the sociologists who attribute all social phenomena to instincts instead of to institutions.] **A. P. Brogan.** 'A Dilemma about Dilemmas.' [Replies to T. de Laguna's criticism of the Complex Dilemma in xviii., 9 by showing that it holds only if 'or' is taken in the exclusive sense and that the best formal logicians, including those mentioned by de Laguna, had expressly stipulated for a non-exclusive, sense of 'or'.] **H. M. Kallen.** 'America and the Life of Reason, II. [Deals more specifically with Santayana's treatment of James and Royce, and hints that he was temperamentally unfit to understand either of them.] xviii., 22. **W. H. Sheldon.** 'Is the Conservation of Energy Proved of the Human Body?' [Shows that in all the experiments which have attempted to prove the principle its truth is assumed—which is what is always done in 'proving' a 'principle'.] **C. E. Ayres.** 'Instinct and Capacity, ii., *Homo Domesticus.*' [Man is so domesticated that all "human behaviour is the behaviour of institutions," and "civilisation is the determination of behaviour by prescription and taboo".] **J. C. Gregory.** 'The Group Spirit and the Fear of the Dead.' ["Primitive fear of the dead had probably a complex origin, but . . . one of its motives was expulsion from the group by the dread event of death . . . he who was, when alive, a comrade of the group, might, when dead and expelled, be intensely feared and bitterly hated." Why?] xviii., 23. **R. C. Givler.** 'The Intellectual Significance of the Grasping Reflex.' [An ultra-behaviourist attempt to trace mental development from the

infant's power to cling to a stick like a monkey which concludes that "the weight of the evidence is overwhelmingly in favour of interpreting the thought process as . . . a neuro-muscular process, and not a cerebral mystery".] **T. L. Davis.** 'The Sanity of Hamlet.' ["He was aware of the essential principles of logic and used them consciously. He used them excessively: that was his madness."] xviii., 24. **Z. Z. Kuo.** 'Giving up Instincts in Psychology.' [Attacks instincts on behaviourist principles as no better than 'innate ideas' and substitutes for them an endowment with "a great number of units of reaction".] **J. Dewey.** 'Classicism as an Evangel.' [The classic spirit was naïve and unconscious in its acceptance of limitation by the actual; no possibility of remoulding reality had yet presented itself. But "modern class-conscious classicism" is "a reversed romanticism" and is "preoccupied with salvation".] xviii., 25. **W. A. Brown.** 'The Future of Philosophy as a University Study.' [The philosophy professors are killing philosophy by narrow specialism and neglecting its function of correlating and unifying the many sources of knowledge. Moreover "the interest of thinking for thinking's sake, of defining and redefining, analysing and reanalysing, controverting and re-controverting, not for the sake of getting anything in particular accomplished by this elaborate paraphernalia but for the sake of showing that you are cleverer than the other fellow at the game you are both playing . . . is not capital enough on which to run the business of philosophy in a modern university".] **R. M. Eaton.** 'The Value of Theories.' ["The chief value of a scientific construction is that it explains experience by making it a consequence of a deductive system. Explanatory value is sufficient to a theory; truth, in the sense of factual truth, is not established and is not a necessary value. Indeed those qualities which make a theory a good explanation, generality and penetration beneath fact, are the very qualities which stand in the way of proving its truth. . . . Further there is no extraordinary type of logic which can be called inductive logic. . . . The inductive and deductive methods coalesce." This omits the need for the empirical verification of theoretic deductions.] xviii., 26. **G. Santayana.** 'On My Friendly Critics.' [Excellent banter, replete with epigrams and autobiographical touches. *E.g.*, "Now that for some years my body has not been visible in the places it used to haunt (my mind, even then, being often elsewhere) my friends in America have fallen into the habit of thinking of me as dead, and with characteristic haste and kindness, they are writing obituary notices, as it were, on my life and works".] **M. Picard.** 'A Discussion of *Mind Discerned*.' [Woodbridge's article in xviii., 13.] xix., 1. **A. O. Lovejoy.** 'Pragmatism and the New Materialism.' [Attacks B. H. Bode's attempt to combine pragmatism and behaviourism. *Cf.* xviii., 1, and xvii., 22, 23.] **L. P. Boggs.** 'A Partial Analysis of Faith.' [The faith attitude "suspends all efforts and waits for an inspiration or guiding thought to come; if from within, we call it auto-suggestion or intuition; if from another, it is called suggestion; if it appears to come from a divine source, it is prayer or an answer to prayer".] xix., 2. **J. Dewey.** 'An Analysis of Reflective Thought.' [Replies to the criticism of his logic by L. Buermeyer in xvii., 25, explaining that "induction I take to be a movement from facts to meaning; deduction a development of meanings, an exhibition of implications, while I hold that the *connexion* between fact and meaning is made only by an *act* in the ordinary physical sense of the word act, that is, by experiment involving movement of the body and change in surrounding conditions. . . . Facts, data, are logically speaking particulars, while meaning functions as a universal." There are no "ready-made or given particulars and universals, data and meanings" . . . "the question for *present knowledge* is whether the old case or rule is or is not applicable to the new one. Many of our

common errors come from assuming that what is known in some cases is also knowledge for the case in hand."] **J. R. Kantor.** 'The Nervous System, Psychological Fact or Fiction?' [Maintains that "a genuinely critical search will reveal not a single valid principle of explanation which psychology has derived from physiology".]

Logos. Rivista Internazionale di Filosofia. Anno iv., Fasc. 2. April-June, 1921. **J. de Menasce.** *Essai d'une théorie du langage.* [The author's thesis is based on the view of Paulhan that man is a non-social being forced by necessity to live in social conditions. Language is not merely a means of inter-communication; it is also, for the individual man, a means of "fixing" his thought. Its social importance is not merely that it enables us to impart and receive information, but that it binds the utterer to his pledge. Hence the universal moral approval of the man who never "goes back on his word". The development of language may take place in either of two directions. The effort may be made—necessarily without final success—to communicate the intimately personal and incommunicable, and thus the language of lyric poetry is created: or the function of "fixing" thought may be developed, and then we get the language of science. The speech of the ordinary man is intermediate between these extremes, but as might be expected in view of the moral importance of being able to "count on a man's word," the tendency towards science preponderates over that towards lyricism.] **L. Limentani.** *Roberto Ardigò.* [A warm éloge pronounced at Palermo March 19th, 1921.] **A. Aliotta.** *L'idealismo gnoseologico.* [Traces the development from the "empirical idealism" of Berkeley through the "transcendental" or epistemological idealism of Kant and the attempts of Fichte, Schelling, and Hegel to "transcend" Kant to the "absolute idealism" of our own time. The article is directed more specially against Gentile. The author's main point is that there is an uneliminated realism in all these doctrines which prevents any of them from being really an "absolute" idealism. Even Gentile is not really an "absolute" idealist since he has to admit the existence of the conscious subject which, according to him, cannot be an "object" of consciousness. Hence if his theory of knowledge is true, his metaphysical doctrine that the "transcendent" does not exist must be false. The author's own position is that the subject is not "transcendent". I have a direct awareness of my own mental life. All attempts to make consciousness the activity of a "transcendent" universal mind or of a consciousness which cannot be a known object to itself are invalid. I could wish the question whether the kind of immediate awareness we have of ourselves is the same as that which we have of anything else had been more fully discussed, and also that it had been made clearer whether this awareness is supposed to *be* knowledge or to be the foundation of knowledge.] **G. della Valle.** *I metodi della Teoria del Valore.* [How do we come to know the various values of ethics, art, etc.? Not by a metaphysical deduction; they are much more certain than any metaphysical theory. Nor by a theological deduction; for God is a hypothesis constructed on the basis of antecedently known values. (This, by the way seems to the writer of this notice glaringly false.) Nor by deduction from the concept of reason as the end. Nor yet by induction from facts; this would lead to no absolute and objective values. Value is a fact apprehended by direct introspection. Hence any theory of values must be founded on psychological analysis. This analysis must not be a mere description but must be analogous to the Kantian analysis of knowledge. Kant's criticism, is, in fact, the first step to a more general theory of values, since knowledge is only one among a vast plurality of different and incommensurable values.] Reviews, etc. Anno

iv., Fasc. 3, July-September, 1921. **L. Rougier.** *Le mythe de la "Raison" et la Science des structures mentales.* [An attack on the validity of non-empirical science of every kind. The author does not spare even the principles of logic, which, are only rigidly valid "for those who please to construct that very special form of thought, a deductive theory," They only appear late in the history of thought, etc., etc. Henri Beyle could never understand elementary algebra. We must therefore get rid of our superstition about logic and replace it by a comparative study of the "mental structures" of different lands and ages.] **V. Miceli.** *La scienza generale del diritto.* [The author repeats his former contention that there can be no such thing as a "philosophy of law". What is possible is a study of existing law in its relation to social life. This is neither pure jurisprudence nor pure sociology, but something between the two. It has to consider, *e.g.*, not merely what is ethically just, but which of the obligations of justice may usefully be enforced by law in a given society. Hence it cannot be created simply on a basis of ethics.] **E. di Carlo.** *La possibilità della filosofia del diritto.* [A reply to Miceli. M. argues that law is an empirical fact, therefore there can be no philosophy of law. Why does he not apply the same argument to prove the impossibility of Ethics? M.'s own treatment of law is itself "philosophical".] **G. H. Bushnell.** *Midian.* [In support of the theory that Moses derived his religion from Midian; the philological arguments strike a non-specialist as flighty and the attempt to make Hebrew religion "phallic" as ludicrous.] **R. Pavese.** *Desiderio di sapere e misonéisme.* ["Misoneism" has a high social importance as inhibitory of our native curiosity. Its function is to prevent hasty acceptance of novel hypotheses and the immoral exploitation of "new ideas" for egoistic ends.] **A. Aliotta.** *La nuova filosofia dell' esperienza.* [The "neutral" monism of the latest realism does not really do away with the "vicious circle" of the old empiricism which "new realism" is trying to avoid. It is, *e.g.*, absurd to attempt to derive subject and object from a process of adaptation to environment, as Avenarius does. The duality which was to be got rid of is already presupposed when we speak of the organism and its environment. Actual experience always exhibits subject and object together. It is unmeaning to assert the independence of either or to derive experience from something which has not this character of duality in unity. The reality of time is experience itself. But "real duration" is not simply a continuous flow; it involves also the recognition of the identity and the distinctness of the different moments. Similarly the contrast of *myself* with *others* is implicit in every moment of real experience. Experience is not only concrete thought but also action creative of new forms of being. Experiment, action, "try and try again," is the only method both of science and philosophy.] **G. della Valle.** *Le caratteristiche essenziali del Valore.* [Value is indefinable, but we can specify characters which belong to all values. A value must be a conscious state; it must be the result of a free mental activity limited by universal and absolute rules. It is not necessary that every value should be actually realised. The creation of value is the fundamental task of the spirit by which it transforms chaos into an ordered world. The specific activity by which values are created is intuition, an "irreducible" activity which is neither rational, emotional nor volitional.] Reviews.

Revue Néo-Scolastique de Philosophie. xxiii Année. No. 91. August, 1921. **E. Merschir, S.J.** *Berkeley est-il empiriste ou spiritualiste?* [The author's answer to the question is that Berkeley is both in virtue of his principle that *esse* = *percipere aut percipi.* All attempts to suppress either half of this principle falsify B.'s thought. B.'s philosophy

remains all through a dualism, and the reason of this is that he is not critical enough; he has too *naïf* a faith in human intelligence. A well-informed, appreciative, and thoughtful essay. But is B.'s admission of a *duality* (that of "ideas" and "notions") really a *dualism?*] **E. Janssens.** *Réponse à un plaidoyer probabiliste.* [Continues the criticisms of the author's former article on probabilism with special reference to the reply of P. Harmignie.] **A. Bourgssonie.** *Les Principes de la Raison.* [Conclusion. Discusses the principles of causality, natural law, "parcimony," "teleology," "type," "good".] **A. Pelzer.** *Les Version latines d'Aristote.* [Notes on the authorship of the versions of the *Ethica Nicomachea, Ethica Eudemia, Magna Moralia, De Virtutibus et Vitiis* current in the thirteenth century.] Notices of Books. No. 92. November, 1921. **G. Legrand.** *Philosophie et sociologie juridique.* [Traces the way in which the general philosophical tendencies of different ages show themselves in jurisprudence with special reference to the thirteenth century, the age of the French Revolution and the nineteenth century.] **E. Janssens.** *Réponse à un plaidoyer probabiliste* (conclusion). [A continuation of the author's former article criticising "probabilism" as a principle of casuistry.] **A. Pelzer.** *Les versions latines des ouvrages de morale conservés sous le nom d'Aristote en usage au xiii^e siècle.* [Deals with the translation of the *Nicomachean Ethics* and the Byzantine commentaries on that work attributed to Robert Grosseteste. The attribution is amply justified. It is certain that the versions were not made by William of Morbeke, and the Henri Krosbein or Kosbein to whom they are sometimes assigned is probably a purely imaginary person. Grosseteste supplements his renderings by rather full comments on the etymology and meaning of many of Aristotle's technical terms. It is probably through his version that information of this kind reached St. Thomas and Albertus Magnus. This has been often overlooked by those who have thought that St. Thomas's knowledge on such points shows acquaintance with the Greek commentators.] **M. de Wulf.** *La philosophie de maître Eckhart.* **A. Bacci.** *Philosophie et poésie dans le poème de Dante.* Reviews, etc.

Rivista di Filosofia (Organo della Societa Filosofica Italiana). Year xiii., No. 2. April-June, 1921. **L. Valli.** *Lo Spirito filosofico delle grandi stirpi umane.* [The author's main thesis is that the critical spirit from which all philosophy springs is peculiarly "Aryan". An interesting essay, but what about the facts? It is assumed that Indian mysticism is a purely "Aryan" development. Is this certain? The Achaeans are credited with introducing the Greek language and the critical spirit into Hellas. What of the facts which seem to show that the Ionians, the admitted creators of "science," were almost wholly of the old "Mediterranean" stock? Much stress is laid on the practice of cremation by "Aryans". But surely burial was as usual in Greece in historic times as cremation.] **E. Buonaiuti.** *Filosofie e religione nella cultura contemporanea.* [A brief address to the recent philosophical Congress at Rome. The main point is that the attempts of the "immanence" and other philosophies to find a substitute for God is a failure. Our age is in transition to a renewal of Christian experience. Hence the relative value of pragmatism as an assertion that life is based on a faith which is prior to all "dialectical" justification of itself.] **A. Pagano.** *L'intuizione intellettuale come momento dell' atto del giudizio.* [The "intuition" of reality is not a separate mental act which precedes and is presupposed by judgment; it is immanent in the most elementary judgment and can be discovered there by analysis.] **F. A. Ferrari.** *Molteplicità di direttive e unità di progresso nella storia di filosofia.* Critical notes. **B. Jakorenko.** *La filosofia del Bolscevismo.* ["Bolshevism" is treated as a great mani-

festation of the Russian spirit bound to lead to great philosophical developments. It is not mentioned that the Bolshevist Camarilla is mostly Hebrew.] **G. Capone-Braga.** *Gli errori dell' esperienza interna secondo Condillac.* **B. Varisco.** *Il valore spirituale della vittoria.* **E. di Carlo.** *La crisi dell' idealismo assoluto.* Reviews, etc.

Revue de Philosophie. September-October, 1921. **H. Guetton.** *Sainte Catherine de Gênes et l'élément Mystique de la Religion.* [A study of Baron von Hügel's book, *The Mystical Elements of Religion, etc.* This first article consists of a sketch of the life of St. Catharine of Genoa whom von Hügel takes as a type of the true mystic.] **Pedro Descoqs.** *La Théorie de la Matière et de la Forme, et ses fondements.* [The first of an important series of articles on the present status of the theory of *Hylomorphism.* The writer believes (with P. Sertillanges) that *Matter and Form*, and not *Actus and Potentia*, is the foundation of the Thomist system. After separating the essential from the unessential in the theory, he shows that the old proof from the occurrence of substantial change in the inorganic world, which was once considered sufficient by itself, can no longer be looked upon as valid, since such substantial changes cannot be assumed to occur.] **Emile Catzeflis.** *Spiritualisme et Matérialisme.* [An elaboration of the proof that the First Cause must possess the attributes of Liberty and Consciousness, and must in consequence be a Spiritual Being.] November-December, 1921. **Jacques Chevalier.** *Morale et Métaphysique.* [This is the paper read by the author at the Oxford Congress of 1920; to the paper are subjoined his answers to the criticisms proposed during the discussion. He argues that the notion of morality, which is possessed by all men, implies the recognition of an *ideal* and an *imperative;* and that these in turn imply the existence of a Supreme Good, Who is the Supreme Legislator and Whose Law is the law of our nature.] **Paul Vignon.** *Pour hâter la rentrée en scène de l'Idée en biologie transformiste* (1er article). [The writer wishes to see acknowledged by biologists a pre-existent plan in accordance with which evolution is being worked out. He rejects as insufficient the theory of transformism by small mutations, even when helped by natural selection, and also the theory of saltations, if these are assumed to occur by chance.] **Pedro Descoqs.** *La théorie de la Matière et de la Forme, et ses fondements* (2e article). [In this article the writer considers the instance of substantial change which occurs in *nutrition.* He shows that the reality of *prima materia* cannot be proved therefrom unless the (Scotist) theory of multiplicity of subordinated forms is excluded. Such an exclusion, he argues, has not been effected by any of the arguments hitherto advanced, either *a priori* or *a posteriori.* Hence substantial change in the Scholastic sense cannot be used as the basis for a certain proof of Hylomorphism. If this theory is to be raised above the plane of a physical hypothesis it must be disengaged from these physical supports and made to rest on a metaphysical foundation. This is to be attempted in the next article.] **H. Guetton.** *Sainte Catherine de Gênes et l'elément mystique de la religion* (dernier article). [This article follows Baron v. Hügel in his discussion of St. Catharine's doctrine, her psychical states, the characteristic tendencies of a mystic, and the relation of mysticism to philosophy, the problem of evil, and pantheism. "Baron von Hügel has definitely shown that mysticism is not a defect but a most intimate communion of the soul with God, and that the mystics, far from being *malades*, are to be counted . . . among the greatest benefactors of the human race."] **O. Habert.** *Nouveau conceptualisme, à propos d'un livre récent.* [M. Emile Meyerson (author of the book referred to) is here said to regard scientific theories as mental schemes imposed on Nature and to contrast the *static* and *general* character of concepts with the

dynamic and *individual* existence of things. The writer of the article restates the Thomistic theory of conception, substance, and individuation as the reconciliation of these antinomies.]

International Journal of Ethics. xxxii., 1. October, 1921. **B. M. Laing.** 'Aspects of the Problem of Sovereignty.' [Outlines rise of the idea of unity as the fundamental characteristic of the State, and of organisations within society now opposed to the State's claim to sovereignty; suggests that certain conditions compel the State to claim sovereignty, while others may demand freedom for other social organisations; hence the core of the problem appears to be the determination of the objective conditions which determine policy.] **Rupert Clendon Lodge.** 'Plato and the Moral Standard.' [Examines critically Plato's views as to the standard applied by the philosophic judge to questions of ethical value; shows that many of the various criteria mentioned by Plato have only a limited application; leads to question 'is a given character in touch with objective reality or not?'] **John Dashiell Stoops.** 'The Will and the Instinct of Sex.' [Maintains that growth of powerful emotional complex is due to dissociation of instinct and will; suggests that through sublimation we need to find in the instincts both the ends and the energy of the will.] **M. C. Otto.** 'The Moral Education of Youth.' [Shows that the real task is not that of teaching abstract rules but of developing a moral attitude to actual situations; criticises attempts to do this by moral instruction and suggests the importance of other methods.] **Ethel E. Sabin.** 'Mistaking America.' [Criticises and replies to article by J. O. P. Bland who maintained that America is sentimental, dominated by feminine ideals.] **Frank Chapman Sharp.** 'Is there a Universally Valid Moral Standard?' [Maintains that there is—the production of the maximum of good attainable under the conditions—analyses causes for deviations from the impartial standpoint.]

VIII.—NOTES.

DR. LUTOSLAWSKI'S "THEORY OF PERSONALITY".

2 Via Crocifissalto,
Settignano-Firenze, 22*nd January*, 1922.

Sir,

Dr. Lutoslawski in "A Theory of Personality" tells that in his experience, as in the spiritual experience of many others, the conviction of immortality had been a sudden revelation coming after years of mere thinking on this matter, and of believing the testimony of others. The views of others had not seemed definitively convincing but then came the revelation which gave immediate intuitive certainty. I myself once had an experience of this sort though not concerned with immortality, and an account of what then and subsequently happened may be of interest to philosophers.

I was at that moment, in consequence of some psychological observation, led to think a great deal about the antinomy of rest and motion, and I was trying to work out a theory concerning this. My occupation with this had become so intense that for a week I had not gone to bed at all, but in the intervals of speculation I used to nap for short periods before the fire. At last there came the moment when the antinomy resolved itself completely, not as a theory but as a revelation. The universe was there about me as a coherent consistent whole. My own harmony and identification with it was as complete as its own inner coherence. I was whate'er I thought on and my thoughts went everywhere. I was mountain hill or stream, bird beast or fish, ravening shark or sea-shouldering whale, all things and everything.

I do not know how long this state lasted. When the vision, the feeling of that which absolutely and completely was, had gone, I tried to measure the value of that which was left over. Not at once, of course. For the moment the vision splendid, and the void its disappearance caused, were all my concern. But afterwards I found that its results were solid gain. Of course I was not left with a satisfactory theory. My revelation had transcended theory and could not be translated back into the lesser medium. I had no theory but I had knowledge which was gold beside the theory's silver.

So it continued for some time, a year or more, but one day as I was meditating upon this, I came to have suspicions of a weak link in the chain of process which had given me my greater truth. It seemed to me that what I had done was exactly what the artist does when he creates, and that the validity of my creation was akin to the validity of poem or picture. The artist, as I then expressed it, comes to an equilibrium in the face of a particular situation, while the mystic comes to an equilibrium in the face of a total situation. In both cases the preliminary work of gathering and meditating is checked by the inadequacy of the material so

taken, to satisfy the worker's needs. He cannot so bring the process to a satisfactory conclusion. The "will" to form the stuff is there, and if the stuff is malleable the form is given. The thing as thus reformed is then *found*, and seems then like an absolute discovery. It is as though one were expanding a balloon with the breath of one's lungs and failing in the effort, at least in appearance, but that at last, when one has either in despair abandoned it, or in final effort lost consciousness of it, the balloon ascends, and we discover it, revealed to us in the heavens. It looks like a balloon, it's located like a balloon, it certainly is a balloon, and as it was previously shown that we could not blow up a balloon, it cannot be the balloon that we were at work upon. None the less I think it is. In this way was faith in my revelation weakened, and my faith in all other revelations as well. Since then I think that verification is necessary to make convincing my own revelations, and I am not inclined to value the unsupported ones of other people at a higher rate.

The essential mechanism of revelation is, I believe, that of all imagery formation. Imagery is the correlative of emotion. I believe that imagery is related to emotion somewhat as "sensation" is to "feeling". I find that "sensations," when so taken together that the value is of the togetherness and not of the particular "sensation," constitute "feeling". This feeling may exist independently of any definite sensation or sensory object, or subordinate to such an one. In like wise I find that when there is a stimulus to action, whether the action of thinking or some other, which cannot unfold itself so rapidly as the stimuli accumulate, then there follows the formation of images and emotions, images in so far as the substitute for action finds a focal point, and emotion in so far as it does not. Here again there may be merely diffused emotion, or the emotion may be subordinate to imagery. A "revelation" is such a focus when it is comprehensive enough, what I called above a total situation. It is singularly convincing because the interest in it is so great, and because its comprehensiveness makes it difficult to circumvent. It persists if it is the kind of thing that we continue to want.

It is furthermore "true" in the sense in which "Beauty is truth, truth beauty," that is, the situation has the quality of a felt coherence. If it were possible to have a proposition durably as comprehensive as this situation, that proposition would also be "true". But even the mystics admit that no such proposition is possible. Their ultimate truth is being, not affirmation. Any proposition gains its truth value from the felt situation, and when the felt situation is more comprehensive than the proposition, the proposition is not really equivalent to it and may be false. It can have then the value of hypothesis, and it can have nothing more.

P.S.—This relation of emotion and image explains the Aristotelian catharsis. The diffused emotions of fear and pity are replaced by the tragic imagery. The purgation is the more complete because of the effective canalisation afforded by the tragic evolution from beginning through middle to end.

The tragic purgation when really effective, has the character of a temporary conversion. Revelations, on the other hand, dealing with situations more or less total, often produce a permanent catharsis. This is excellently put in words by Dante when Beatrice says :

"Io son fatta da Dio, sua merce, tale,
Che la vostra miseria non mi tange,
Ne fiamma d'esto incendio non m'assale."[1]

[1] "I am made such by God, in his grace, that your misery does not touch me ; nor the flame of this burning assail me."—(Carlyle.)

Both fear and pity have been purged away and love purified remains the only motive.

It is hardly necessary to add that what is true of tragedy and the emotions of fear and pity is equally true for other qualities of art expression, and other interests in revelation and conversion.

LEO STEIN.

A CORRECTION.

MR. W. E. JOHNSON has pointed out to me that on page 7 of my Hertz Lecture on "Universals and Propositions," I have misrepresented him and even reversed his meaning. He says that he gave a flash of lightning not as an instance of a substance but of what is *not* a substance. I am glad to find that it is so and I regret the misunderstanding. There now remains no point of importance in which I disagree with Mr. Johnson's book except his account of what constitutes generality. Perhaps the difference even here may turn out to be less fundamental than it seems.

G. F. STOUT.

SCHULE DER GEISTESKUNDE.

HERR STAAK of Bernitt, near Bützow (Mecklenburg) writes to the University of Manchester expressing his desire to enlist the co-operation of English scholars in establishing a 'Schule der Geisteskunde,' concerned especially with higher mental development. He published at the beginning of last year a chapter of his investigations, called 'Aufbau der höheren geistigen Entwickelung,' and he offers to place ten gratuitous copies at the disposal of scholars in this country, who are interested in the project.

MIND ASSOCIATION.

THE Annual Meeting of the Mind Association will be held this year in Manchester, at the University Arts Building, at 5 p.m. on Friday, 14th July.

A Joint Session of the Association with the Aristotelian Society and the British Psychological Society has been arranged to take place in Manchester from 14th to 17th July. Most of the papers read at this Session will, in accordance with a resolution passed at the last annual meeting, be published in the October number of MIND. Any member of the Association may attend the Meetings and, on paying a fee of 5s., will be supplied in advance with off-prints of the papers. Accommodation will be provided for men at Hulme Hall, and for women at Ashburne Hall. The charge for this from Friday dinner to Monday breakfast (inclusive) will be 27s. For partial attendance the charges will be: Bedroom and Breakfast, 6s. 6d. per day; Lunch, 1s. 6d.; Tea, 6d.; Dinner, 3s. 6d. All meals will be at Hulme Hall, except that breakfast will be at Ashburne Hall for those staying there.

Members who wish to take part in the Session are requested to apply as early as possible to

Prof. S. Alexander,
24 Brunswick Road,
Withington, Manchester,

enclosing, with their application, the fee of 5s., if they wish to have off-prints, and stating what accommodation (if any) they require in Hulme

or Ashburne Hall. The charge for accommodation should not be enclosed with the application, but paid to the Bursar on leaving.

The Programme of Meetings is as follows :—

FRIDAY, 14TH JULY.

At 5 p.m. At the University Arts Building. Annual Meeting of the Mind Association.

At 9 p.m. At Hulme Hall.
"Symbolism as a Basis for Metaphysics." The Bishop of Manchester.

SATURDAY, 15TH JULY.

At 10 a.m. At the University Arts Building.
Symposium: "Are History and Science different kinds of Knowledge?" R. G. Collingwood, A. E. Taylor and F. C. S. Schiller.

At 10 a.m. and 2.30 p.m. At the University Psychological Laboratory. Demonstrations and Papers.

At 9 p.m. At Hulme Hall.
Symposium: "Is the Unconscious a Conception of Value in Psychology?" G. C. Field, F. Aveling, and J. Laird.

SUNDAY, 16TH JULY. At Hulme Hall.

At 2 p.m. Symposium: "The Relation between Sentiments and Complexes". W. H. R. Rivers, A. G. Tansley, T. H. Pear, Bernard Hart, A. F. Shand and C. S. Myers.

At 5 p.m. "Mr. Alexander's Theory of Sense Perception". G. F. Stout.

At 9 p.m. Discussion on "The Philosophical Aspects of the Principle of Relativity". To be opened by A. N. Whitehead.

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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY

I.—THE PHILOSOPHY OF CHANCE.

BY F. Y. EDGEWORTH.

NEARLY forty years have elapsed since I contributed to MIND, under the title now again employed, some reflections suggested by Dr. Venn's *Logic of Chance*. The appearance of another original work, inquiring into first principles and challenging received opinions, Mr. Maynard Keynes' treatise on *Probability*, now renders opportune a reconsideration of views expressed in 1884.

The questions to be rehandled may be arranged under the following heads:—

I. What is the definition of Probability; what does Reflection (in Locke's sense) reveal respecting that sort of partial belief to which the term Probability relates?

II. Should that kind of belief be attached to propositions other than those based on statistical experience; on the observation that in the long run the frequency of a species (*e.g.*, male births) presents approximately a certain ratio to the frequency of its genus (*e.g.*, births in general)?

III. With respect to probabilities which are thus based on statistical uniformities, "series" in Dr. Venn's phrase, what canons are available for proving that the series will hold good beyond the limits within which it has been observed?

IV. What is the bearing of the Probability-Calculus on conduct; what guidance is afforded by that compound of prospective advantage and the probability of its attainment which is technically termed Expectation?

I. Characteristics of Probability.

Probability seems not to admit of definition. "We cannot analyse the probability-relation in terms of simpler ideas" (Keynes, p. 8). It is, in Locke's phraseology, a simple idea. Yet it is not so simple and clear but that doubts about its characteristics have arisen.

First, are there gradations of probability; can we measure degrees of belief? I am not concerned to defend the numerical precision of the measurement. We may be content with the conception of measurement which satisfies the physicists. As Prof. Love writes: "The capacity of numbers to answer questions of how many and how much, in other words to express the results of counting and measuring, may be regarded as a secondary property derived from the more fundamental one of expressing order. . . . Natural numbers form a series with a definite order, and the expressions 'greater than' and 'less than' mean more advanced and less advanced in this order" (Article on "Functions of Real Variables," *Encyclopædia Britannica*, edn. x., p. 544, vol. 28. Compare Eddington, *Space, Time and Gravitation*, quoted in part below). In short the issue is narrowed to the question whether it is always possible "to arrange probabilities in an order of magnitude," to say that one is greater or less than another (p. 29). The issue thus defined is not affected by the instances which Mr. Keynes directs against the possibility of "reasoned numerical estimates of probability"; such as the case of the vessel *Waratah* which disappeared in Southern waters and the estimate of the chance that it was still afloat after a considerable lapse of time (p. 23). Even the most discriminating of our senses, eyesight, often affords only blurred and vague perceptions. A common experience was expressed by Euripides' Antigone when, looking from the battlements of Thebes at one of the invading chiefs, she said

ὁρῶ δῆτ' οὐ σαφῶς, ὁρῶ δέ πως. (*Phœnissæ*, 161.)

From a similar standpoint Priam might discern that one hero was taller than another without being able to form a "reasoned numerical estimate" of their heights. But Mr. Keynes objects to even rough comparisons between probabilities unless they are *in eodem genere*. "It is not always possible to say that the degree of our rational belief in one conclusion is either equal to greater or less than the degree of our belief in another" (p. 34). The case is illustrated by the degrees of *similarity* which cannot always be placed in an order of magnitude. "There may be no com-

parison between the degree of similarity which exists between books bound in red morocco and white morocco and books bound in red morocco and red calf" (p. 36). I am disposed to attach importance to the incident that in the scale of probability (whatever the subject) there is at least one fixed point or tract between complete disbelief and perfect certitude; that corresponding to hesitation between two courses of action which offer equal gain there are comparable probabilities of its attainment. But Mr. Keynes would perhaps not admit these objections (p. 30).

Supposing that different amounts of belief can be arranged in a scale, does this presuppose a "series" in Dr. Venn's sense? Must we say with him "the greater part of their meaning and certainly their only justification are to be sought in the series of corresponding events to which they belong" (*Logic of Chance*, edn. 3, p. 150)? Must we say with Ellis: "I have been unable to sever the judgment that one event is more likely than another from the belief that in the long run it will occur more frequently" (quoted by Keynes, p. 93)? Mr. Keynes argues forcibly against this "frequency theory": which even when purified from the assumption of numerical precision and other crudities appears to him untenable. Whereas probability is always relative to definite data, if the datum consists of a "class of reference"—what I have above described as a "genus"—how are we to know what class is appropriate, when a given proposition belongs to innumerable different classes? I understand the difficulty to be of the kind which Dr. Venn has illustrated by the case of the consumptive Englishman in Madeira. Which set of statistics is appropriate—those relating to Englishmen in general, or to consumptive patients without respect to nationality? So it may happen with respect to the measurement of time that one has to depend upon two clocks neither of which keeps good time. Yet common-sense may conjecture which of the two, or what combination of the two, will give the best approximation to the true time. The discrepancy between bad clocks, and that more embarrassing discrepancy between the best clocks moved through space at different rates which the Einstein theory discloses, do not deter the physicist from relying on his chronometer. Thus Prof. Eddington testifies: "I have no notion of time except as the measurement with some kind of clock" (*Space, Time and Gravitation*, p. 13). He is speaking, I think, with reference to the deliberate judgments of science. He would not insist, I suppose, that we always think of a clock in connexion with estimates of

duration, for instance when we hastily judge that there is or is not time to cross a street before a "taxi" will be on us. The Sultan who, as told in the *Spectator* (June 18, 1711), seemed to himself to have lived through years during the few moments for which he held his head under water was not estimating the lapse of time by any objective measure of duration. Dr. Venn allows similar exceptions to the rule that probability implies reference to a series (*op. cit.*, p. 152). The exceptions are less important than might be expected in virtue of a conception of which Mr. Keynes has not made much use, that of "Cross-series" (Venn, *op. cit.*, pp. 147-148). "We are very seldom called upon to decide and act upon a single contingency which cannot be viewed as being one of a series." "A man, say, buys a life annuity, insures his life on a railway journey, puts into a lottery, and so on." It may be expected, I think, that the class of actions which cannot be regarded as part of a "series" will diminish with the increase of providence and sympathy (MIND, *loc. cit.*, p. 224).

From considering the normal character of belief we pass by an easy transition to the standard and tests of credibility. Probability, as Mr. Keynes rightly insists, is ever relative to some assumed premisses. A premiss may be subjective such as the belief in one's own existence. But the relation between the premiss and what may with more or less probability be inferred from it is "rational" or "objective" (pp. 8, 16, 97, *et passim*). I have suggested (MIND, *loc. cit.*, p. 225), that the first principles of credibility are like those of conduct which according to Mill do not admit of proof in the ordinary sense. "Considerations may be presented capable of determining the intellect either to give or withhold its assent" (*Utilitarianism*, p. 6, *cp.* p. 52). I must leave it to philosophers to enounce the considerations proper to the standard of credibility. Perhaps they will be found analogous to Hume's reflections upon *The Standard of Taste*: showing that amidst "the great variety of taste as well as of opinion" . . . "there are certain general principles . . . whose influence a careful mind may trace" (*Essays*, Green and Grose's edition, Vol. i., pp. 266, 271). More objective judgments no doubt are available when the scale of probabilities is finely graduated and the degrees are verified by observed frequency of occurrence.

II. À Priori Probability.

Some test of credibility seems to be required when we go on to consider the legitimacy of probabilities based on the

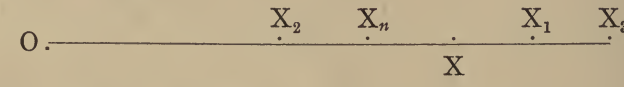
so-called principle of Sufficient Reason (which Mr. Keynes prefers to call the principle of "Indifference") without statistical verification by way of a "series". I have contended that Dr. Venn has gone too far in his scepticism with respect to these *à priori* probabilities. This contention now derives powerful support from Mr. Keynes' dialectic. He too maintains that Dr. Venn's scepticism goes too far (Keynes, p. 52). He has laid down rules for purifying this source of belief from the contradictions and anomalies with which it has been mixed (p. 61 and context). He points out that Dr. Venn is not consistent in his scepticism (Keynes, p. 100). To the passage in the *Logic of Chance* which Mr. Keynes adduces I may add the following. Seeking an analogue for the sporadic distribution of digits in the decimal places of the constant π, Dr. Venn supposes that we have a rod or line which we want to measure with the utmost accuracy. "We lay our rod against the scale and find it, say, fall between 31 and 32 inches; we then look at the next division of the scale, *viz.*, that into tenths of an inch. *Can we see the slightest reason* why the number of these tenths should be other than independent of the number of whole inches?" (*op. cit.*, p. 112. The italics are mine.) For another example, "we should *expect* rather than otherwise to find here (in a square root), as in the case of π, that incommensurability and resultant randomness of order in the digits was the rule, and commensurability was the exception" (*op. cit.*, p. 113). Now this sporadic distribution of digits is just the sort of assumption which I have postulated under the designation of "*à priori*," or better "unverified," probability (*cp.*, Article on *Probability*, *Encyclopædia Britannica*, edition 11, §§ 6, 132).

The principle is of wide application in Economics and other branches of Social Science. Thus Prof. Pigou relies on a presumption of the nature of "unverified probability" that "conclusions about the effect of an economic cause upon economic welfare will hold good also of the effect on total welfare" (*Wealth and Welfare*, p. 11). In a recent review of Mr. Keynes' *Probability* he rests on the same sort of evidence the assumption that "curves of demand and supply are likely to be continuous," that there is "some definite relation between the elasticity of demand at a point taken as known and the elasticity at neighbouring points" (*Economic Journal*, vol. xxxi. (1921), p. 512). I have submitted other examples in several numbers of the *Economic Journal*, to which references may be found in the *Journal of the Royal Statistical Society* at a passage in which I point out that *à priori* probabilities are involved in a generally accepted

argument concerning the distribution of velocities in a medley of colliding molecules (vol. lxxxiv., 1921, p. 81; *cp.*, 1922, vol. lxxxv., p. 483).

It may be observed that in general, for instance in all the applications which have just been noticed, the use of *à priori* probabilities has no connexion with inverse probability. That conjunction does occur in one very important branch of Probabilities—that which deals with errors-of-observation. As Laplace remarks (*Essai Philosophique*), this is the part of our science which involves the most difficult and delicate analysis. The treatment of this subject was one of the principal objects to which his great work, *Théorie analytique des probabilités* was directed (*loc. cit.*).

A very simple illustration of the problems involved will be sufficient here. Let there be given several observations each standing for, purporting to be, the measure of some magnitude —such as a distance or an angle—which it is required to ascertain. Thus to measure a required length, *e.g.*, a surveyor's base-line,



let OX_1, OX_2 . . . OX_n be n observations numbered, say, in the order of time in which they occurred. It is required to combine these observations so as to obtain the best value of OX the *quæsitum*.

There is to be distinguished the special case (connected with the name of Bernoulli) in which the observations stand (not as above for an absolute magnitude, but) for a *ratio*, *e.g.*, that of the black balls to all the balls in an urn containing only black and white balls. Thus OX_1 might stand for the percentage of black balls in a sample numbering a hundred taken at random from such an urn (each ball being returned to the urn after it has been drawn, unless the number of balls in the urn is indefinitely great); OX_2 would stand for the percentage presented by another sample, and so on. It is required to combine these observations so as to determine OX the ratio of black to white balls in the urn.

It is commonly taken for granted that *à priori* one value of OX is as likely to be the true value as any other. But there may sometimes be reason for doubting this. We may know beforehand the *whereabouts* of the *quæsitum;* in which case *à priori* equi-probability could only be predicated of a certain tract of values, say a portion of the horizontal line through O. A more exact statement is given below.

In the shadowy world of *à priori* probabilities our author has made some remarkable explorations which are relevant to the problems now before us. First, in the special case above distinguished, he argues that the distribution of *à priori* probabilities is not, as commonly assumed by the classical writers, the equi-probability of each *ratio*, but that of each "constitution" in Boole's sense (p. 57). It follows that "an approximately equal number of black and white balls is *à priori* more probable than a large excess of one colour" (p. 50; *cp.*, Boole, *Laws of Thought*, p. 370). Again, still with reference to our special case, c being a character compounded of a and b between which there is no association, if x is the probability of a, y of b, z, the probability of c, $= xy$. Then if all values of x and likewise of y between certain limits are equally probable, the values of z are *not* so distributed (p. 381). Likewise, in the general case, if one variable, say specific volume, has its values equally distributed *à priori*, then a variable which is a *function* of the first one, say specific density, does *not* so distribute its values (pp. 45-46. *Cp.*, *Encyclopædia Britannica*, Art. *Probability*, § 8).

These objections to commonly made assumptions are of considerable philosophical interest. But their practical importance with reference to the Theory of Errors is less than might be supposed for more than one reason.

First, when the magnitude for whose various values we claim equal probability is very large in comparison with the tract through which it varies, then it comes to much the same whether the equi-probability is claimed for the magnitude itself or for some (ordinary) *function* thereof—the square, or square root, or reciprocal, etc. For example, suppose it is sought to determine with precision the length of a pendulum known to within a tenth of an inch to be about a yard long. On the plausible assumption that the period of the pendulum (the time occupied by an oscillation) is *à priori* as likely to have one value as another (in the immediate neighbourhood of that period which corresponds to a pendulum a yard long), the *à priori* probabilities for the pendulum's length will not be distributed with perfect equality. Whereas the period is proportionate to the square-root of the pendulum's length, it may be shown that the probability of the pendulum having an assigned length l, meaning thereby a length between l and $l + \delta l$, where δl is a very small degree of length, is not simply $a\delta l$ where a is a constant (as it would be if the distribution were perfectly equal), but is proportional to the *reciprocal of the square root* of l = say $b\delta\lambda \div \sqrt{l}$, where b is a constant. Now by hypothesis, say, l lies between 36 + ·1 inches and

36 − ·1. Whence it is deducible that $b \div \sqrt{l}$ differs from $b \div 6$ by less than ·14 per cent. thereof. Accordingly the probability of l being the true value is *very nearly* δl multiplied by a constant; the *à priori* probabilities of the different values are practically equal.

A more general and important reason for the neglect of *à priori* probabilities in dealing with observations arises from the circumstance that, commonly and except when they are very unequal, they are masked and overruled by the *à posteriori* evidence which the observations afford if obtained in sufficient numbers. The matter is well put by Mill with reference to the case which we have distinguished as special. He is enquiring whether a certain event, such as a succession of aces, has been produced by accident, or by the alternative cause, loading of the dice. "We may be able to form a conjecture as to the antecedent probability (of loading) . . . but it would clearly be impossible to estimate that probability with anything like numerical precision. The counter-probability, however, that of the accidental origin of the coincidence, dwindling so soon as it does at each new trial, the stage is soon reached at which the chance of unfairness in the die, however small in itself, must be greater than that of a casual coincidence" (*Logic*, Book III., ch. xviii., § 6). Compare Bertrand's example of the inaccurate roulette-table (*Ency. Brit.*, *loc. cit.*, § 46). The suppression of *à priori* probabilities, as we may call the incident explained by Mill, was almost simultaneously pointed out by Cournot (*Exposition de la Théorie des Chances*, 1843, § 95). It is recognised by Mr. Keynes (p. 388). It is extended by the present writer to the general case of magnitudes other than ratios (*À priori Probabilities*, *Philosophical Magazine*, 1884, vol. xvii., p. 204; *cp.*, *Journal of the Royal Statistical Society*, 1908, vol. lxxi., pp. 387, 392). The reasoning does not require the *à priori* values of the tract with which we are concerned to be very nearly equal; it suffices that they should not be very unequal (*Ency. Brit.*, *loc. cit.*, §§ 8, 46). Even when a correction is prescribed by what is known about *à priori* probability, the correction is in general of an order which becomes negligible as the number of observations increases. In the common case of numerous observations the rôle of *à priori* probabilities might be illustrated by that of testimony as to the antecedents of candidates at a competitive examination for appointments not requiring special qualifications. A great number of candidates might be practically equal as to nationality, absence of any damaging record, and other antecedents.

The appointments would usually be given to those who did best at the examination; but occasionally the antecedents might affect the selection.

The assumptions involved in the usual treatment of errors-of-observation have been well stated by Mr. Keynes (p. 191, *et seq.*). Indeed, as I have pointed out elsewhere (*Journ. Stat Soc.*, 1922, p. 111), he has made a notable contribution to the mathematics of the subject; thereby vindicating a right to criticise the methods of the calculus which is hardly to be allowed to the mere logician. But I think he does not do justice to a very important application of the doctrine of errors, the method of sampling as now practised, by Dr. Bowley in particular. Here the ratios or other measurements of magnitude which the sample presents are treated as observations from which to ascend to the corresponding quantities for the total or "universe" from which the sample is taken at random. The danger attending statistical inference which our author so much dreads is here at a minimum. The inductive leap from the known to the unknown is particularly short; the suppression of *à priori* probabilities may be relied on if the sampling is thoroughly performed.

It is not irrelevant to remark that the suppression of *à priority* has some bearing on a controversy which has exercised great minds, concerning the so-called Rule of Succession. The unmeasured ridicule which is poured upon this Rule is deserved only when it is applied to "any experience *however limited*," and purports to prove that "if B has been seen to accompany A twice, it is two to one that B will accompany A on A's next appearance" (p. 82. *Cp.*, p. 28, note; p. 377, *et seq.*). But when the relevant *à priori* probabilities (p. 376) are overruled by the number of the observations, as may be shown by the reasoning above cited, the Rule of Succession is by no means so absurd. I am not sure but that it may still be used in the edifice of inductive science, not indeed as a foundation, but as one of the *cross-beams* in that complicated structure (MIND, p. 235). If so, with reference to large numbers of instances as supporting induction we may still say of the Rule in question with Sir John Herschel: "It is never without its instruction to trace this sort of parallel between mental impressions and abstract numerical relations" (*Edinburgh Review*, 1850, vol. xcii., p. 7; *Essays*, p, 376). I am not much moved by the objection that in this view Probabilities are made to support Induction, while Induction is required to support Probabilities. Two methods by their consilience may archwise mutually support each other. At

least the consistency of first principles may be shown by such demonstrations (*cp.*, *Ency. Brit.*, *loc. cit.*, § 25).

It remains to examine the logical basis of the *à priori* probabilities which we have been considering. I have maintained that the ground of those beliefs is a very wide experience, perhaps of the unconscious and even antenatal species, which some prefer to call intuitive knowledge (MIND, p. 229). This view is, I hope, not inconsistent with Mr. Keynes' description of the judgments derived from the Principle of Indifference as "direct" (pp. 53, 65, 70, 316). Provided that the cogency of the evidence is granted, I do not much mind what it is called. On the issue between intuitive and empirical with respect to the propositions in question, I am disposed to repeat what Sir John Herschel has said, in his review of Whewell's Philosophy, with respect to the issue in other cases: "it seems far from certain that this opposition of views is anything more than apparent. . . . On either view of the subject the mind of man is represented as in harmony with universal nature" (*Quarterly Review*, 184; *Essays*, p. 152). The followers of Mill may with the less scruple admit the language of intuitionism in the case before us since it is not claimed for *à priori* probabilities that they are "necessary" in a sense implying that they dispense with, and are not liable to be modified by the addition of, empirical evidence. It is agreed that *à priori* probability is generally negligible in comparison with the evidence of repeated observations—like the starlight which precedes and fades into the light of day.

III. The Logic of Statistics.

A priori probabilities not used in the same sense as in our second section are closely connected with our third section. The *à priori* propositions now relevant are prior not to all positive or specific experience, but only to that experience which forms the apparent immediate foundation of an induction. The inductions to be considered are those which establish the truth of those quantified generalisations which are presented by Statistics and by Dr. Venn called probability "series". There seems to be no essential difference between this statistical inference and the induction which establishes ordinary universal generalisations (*cp.*, Keynes, ch. xxvii. and p. 391). My only contribution to this logic is to insist, with Mill and others, on the part played in all our inductions by pre-existing knowledge (*cp.*, Mill, *Logic*, Book III., ch. iii., § 3; ch. iv., §§ 2, 3). This sub-

stratum may consist of the so-called direct or intuitive generalisations considered in our second section; or of generalisations which are the outcome of experience in the ordinary sense. Both kinds of pre-existent knowledge were noticed in MIND, 1884; and more explicitly with reference to statistical inference in a paper written a year later. An "abscission of certain antecedents as immaterial is constantly going on in inductive logic by . . . an almost unconscious process. It is presupposed in every act of the Method of Difference. The chemist rejects historical events as immaterial; the historian the conjuncture of the stars. There is in each case a vast substructure of previous knowledge of the connexion between things; not very prominent perhaps in treatises on logic, yet constituting the foundations of wisdom" (*Journal of the Royal Statistical Society*, December, 1885). So Dr. Marshall in an address on the "Graphical Method of Statistics" (in the Jubilee number of the same Journal, 1885) directs us to estimate the nature of the dependence of an observed event A on each of the possible causes B, C, D . . .; "our reason making use of that abstract and essence of past experience which is on the one side science and on the other practical instinct".

The view that pre-existing knowledge plays a great part in induction is convincingly reaffirmed by Mr. Keynes. It is well illustrated by the supposed irrationality of primitive peoples; really due to their want of previous relevant knowledge. Thus "it is a curious superstition" of a tribe in Borneo, as described by a recent pioneer, "to attribute anything that happens to them to something novel which has arrived in their country"; for instance intensely hot weather to the pioneer's arrival. "What is this curious superstition but the Method of Difference," pertinently asks Mr. Keynes.

Behind the inductive methods are the more essential principles of analogy or likeness, pure induction or repetition. Pure induction avails not without some finite initial probability in favour of the generalisation, obtained from some other source than the instances examined (pp. 238, 295, 302 *et passim*). A "finite probability," it should be explained, is "one which *exceeds* some numerical probability the ratio of which to certainty can be expressed by a finite number" (p. 237). It would come to the same, as I understand, to take as the condition that an indefinitely great *à priori* improbability does not attach to the generalisation which it is sought to prove. Or perhaps the latter statement is not equally stringent. For Mr. Keynes appears to rule out as not satisfying his condition a generalisation connecting the

weights of babies with their Christian names (p. 426). Yet no extreme improbability attaches to that generalisation. Certain Christian names popular among families of a particular race or sect might predominate among particular sections of the population. The inherited qualities of the race, or the habits enjoined by the faith, might be attended with peculiarities in vital statistics generally and in particular as to the weight of babies. So easy an explanation might not always be forthcoming. But, as in the case of conjuring tricks which we cannot explain, there may be a general *à priori* probability that there is an intelligible explanation. Of course it would not be contended that the observed uniformity would hold good outside the environment within which it was observed; it would not be true in every country that certain Christian names are attended with certain peculiarities of infant life. Parents could not even in the observed country secure that their children should be fat and well-liking by giving them names correlated with weight above the average. I concede to Mr. Keynes that the mathematical method of correlation as usually understood and practised does not avail to prove more than empirical generalisations.

But I think that he has somewhat underrated the power of the method to establish such generalisations. He puts a case which does not bring into action that grip of quantitative data which is characteristic of the mathematical method. Let us vary his illustration by imagining that there is observed a connexion between the number of ounces that an infant weighs and the number of letters in its name or names, on the supposition that the average infant has several names. Say the average number of letters is considerable, well above a dozen; and construct a table showing the frequency with which each number of letters in the full name is associated with each number of ounces in the weight of an infant. Suppose that this construction fulfils accurately the conditions of a *normal frequency-surface* with correlation-coefficient large and positive (*cp.*, Yule, *Theory of Statistics*, ch. ix.). Let the number of observations be large; and let the grouping pass triumphantly the criteria which may be applied to test whether it conforms to a normal error-surface. The case would thus present a complex and close resemblance to the more perfect exemplifications of normal correlation which are exhibited in recent treatises on Statistics. It may be expected therefore that our case will also resemble those examples in a certain stability, such that if you examine some fresh instances—in addition to the mass of observations

which evidenced normal correlation—the fresh batch would present much the same connexion between the attributes (in the case before us length of name and number of ounces) as was observed in the original large group. The inference, I think, would come under one of Mr. Keynes' general canons: that the more comprehensive the characteristics in which the instances are similar the stronger is the probability of the generalisation we seek to establish (p. 219).

Mr. Keynes has carried much further his enquiry concerning the nature and functions of analogy and induction. But I do not propose to follow him into this obscure region; which lies somewhat apart from the topics which are here reconsidered. But there is one tenet of the higher Logic which cannot be passed over by a writer on Chance. As the "peering eye of philosophy" is strained to explore the origins of knowledge there is dimly discerned a first principle which is of momentous interest to the student of Probabilities: "The character of material laws on which scientists appear commonly to act, seems to me much less simple than the bare principle of Uniformity (as to which see pp. 226, 255, 263). They appear to assume something much more like what mathematicians call the principle of the superposition of small effects, or, as I prefer to call it, in this connexion, the atomic character of natural law. The system of the material universe must consist, if this kind of assumption is warranted, of bodies which we may term (without any implication as to their size being conveyed thereby) *legal atoms*, such that each of them exercises its own separate independent and invariable effect, a change of the total state being compounded of a number of separate changes each of which is due to a separate portion of the preceding state" (p. 249).

Whatever the claims of this principle to be characteristic of the universe, it is at least congruous with the nature of things in so far as it postulates conditions required by, or at least conducive to, the realisation of a law which is or tends to be approximately realised throughout wide fields of existence, the "normal law of error". I so designate that grouping of statistics about their average, that relation between the extent of a deviation and its frequency, which Galton and many modern statisticians have made familiar. It seems best to restrict the term "law" in this connexion to the *conception* of that relation, the form of the curve (or, in more complicated cases, surface) which represents the grouping; as distinguished from the *proposition* which may be called the "theory" of error, that, given certain conditions,

the law will be realised. To which perhaps should be added the proposition (without which the theory would have no practical importance) that the conditions are fairly often fulfilled *in rerum naturâ*, sufficiently well for the (approximate) realisation of the normal law of error. The theory is to be distinguished from the doctrine, the false doctrine, that generally, wherever there is a curve with single apex representing a group of statistics—one axis denoting size, the other axis frequency—that curve must be of the "normal" species. The doctrine has been nicknamed "Quetelismus," on the ground that Quetelet exaggerated the prevalence of the normal law.

The conditions proper to the fulfilment of the normal law by a variable magnitude are two-fold: that it should depend upon a number of causes, and that those causes should be independent of each other. Or rather, as the term "independent" is here to be taken in each of two senses, there are three conditions: (1) The quantity conforming to the normal law should be a compound, composed of *numerous* constituent elements; (2) each element should fluctuate *independently* (in the sense proper to Probabilities) of the others; (3) the composition should be simple, the compound being a *sum* of the elements (or a sum of components each of which depends on—is a *function* of—a single element). The last two conditions are given by Mr. Keynes' axioms. In criticising the statistical side of his treatise (in the *Statistical Society's Journal*, 1922) I have complained that he has not adequately recognised the leading law of Statistics, the theory of error. I have now to add that he makes amends for that omission by showing the prevalence of the conditions which underlie that theory.

The significance of the conditions may be exhibited by considering their more or less perfect fulfilment in different spheres. With respect to errors-of-observation, errors *proper* as they may be called (as distinguished from "errors" used generically for deviations from an average), I quote from a high authority on Probabilities, Morgan Crofton (author of the article on the Theory of Probability in the ninth edition of the *Encyclopædia Britannica*). He is maintaining the hypothesis (consonant with our theory) that "errors (of observation) *in rerum naturâ* result from the superposition of a large number of minuter errors arising from a number of independent sources". He proceeds: "In coarse and rude observations the errors proceed from a *very few* principal causes, and in this case, consequently, our hypothesis will probably represent the facts only imperfectly,

and the frequency of the errors will only approximate roughly and vaguely to the law which follows from it" [referring to the normal law of error]. . . . "When these few capital occasions of error were removed" . . . astronomers "found that not three or four, but a *great number* of minor sources of error, of nearly co-ordinate importance, began to reveal themselves . . . errors of their adjustments; errors (technically so called) of observation [? due to the imperfection of the observer's senses]; errors from change of temperature, of weather, from slight irregular motions and vibrations; in short, the thousand minute disturbing influences with which modern astronomers are familiar." But "it is not enough for us to show that each error in practice is compounded of a large number of smaller errors; we must also show that they are *independent*, at least for the most part". Admitting that some of the errors may be interdependent he yet sums up "we may at least safely conclude that the hypothesis in question is not a mere arbitrary assumption, but a reasonable and probable account of what does in fact take place" (*Transactions of the Royal Society*, 1870, pp. 175-177). This conclusion is in accordance with the "atomic character of natural law" postulated by Mr. Keynes. It is assumed not that there is never correlation between the phenomena, but that "for the most part," or at least in good part, independence prevails. A similar explanation is available in a neighbouring department within which the normal law of error may be expected and is found—the distribution of shot marks on a target.. The varying causes affecting the aim are like to those enumerated by Crofton; and there are additional independent causes affecting the flight of the bullet however well aimed, inequalities of charge, tremors of the air and so forth. If the barrel of a rifle is fixed firmly, and successive shots are fired so as to hit a target at some distance, it is found that the bullet-marks are dispersed; owing to the operation of the latter class of causes only. It is presumable that a like plurality of independent causes operates in a *third* class of instances, the organs and attributes of natural species, for instance the height of adult males in a homogeneous population, or other measurements as tabulated by a Galton or Pearson. The causation by which the magnitudes of inherited attributes are distributed may perhaps be illustrated by a sort of heredity which occurs in a *fourth* sphere favourable to the genesis of the law-of-error, the movement of molecules in a free gas. The velocity of a molecule at any time may be regarded as the offspring of two parent velocities, namely the velocity of the molecule itself before its

latest collision with another, and the velocity of that other before the collision. The two parents were likewise sprung each from two parents; and so on. The velocities of the system at any moment may be regarded as simply compounded of numerous elements fluctuating independently (*cp.*, "Applications of Probability to the Movement of Gas Molecules," *Philosophical Magazine*, Sept. 1920; and "Molecular Statistics," *Journal of the Royal Statistical Society*, Jan. 1921). It is no wonder therefore that the law-of-error should be found in great perfection in a medley of molecules; visible to the eye of reason, and almost to the natural eye through their action upon visible granules ("Brownian" movements).

This theory deserves the attention of philosophers as affording a particularly unequivocal and striking instance of positive knowledge that seems to be obtained *à priori* or by intuition. It seems as if "it might have been certainly known to be true independent of experience"; what Whewell claims for the Newtonian first law of motion. Of course Whewell did not mean that we obtain the particulars of any instance *à priori*. Through sensation, or from some other empirical source, we ascertain the minor premiss that there is no obstacle impeding the motion of a certain body; and then by the first law of motion given *à priori* we conclude that the body will go on moving at a constant rate. The theory is not falsified because in everyday life we do not often meet with a vacuum. So in the theory now under consideration what is supposed to be given *à priori* is not the fact that a certain magnitude is a compound of numerous constituent elements, but that, if it is a compound, the components will be independent of each other "for the most part" as Crofton has it, or at least adequately for the genesis of the law of error when the number of components is considerable. The fact that the normal law of error is not very commonly realised in great perfection is not fatal to the theory of error as here defined, but only to the false doctrine of "Quetelismus". Where only "a *very few* principal causes," in Morgan Crofton's phrase, are present, there, as he admits, "our hypothesis will probably represent the facts but imperfectly".

We have thus a new instance of *à priori* evidence claimed for propositions outside pure mathematics and metaphysics. The new instance is more striking and paradoxical than the one presented by the Principle of Sufficient Reason. For no one can doubt but that the propositions now before us—the fact for instance that the heights of an adult male popu-

lation conform to a certain simple formula—are *matters of fact* rather than *relations of ideas*—to use the antithesis strongly marked by Hume when defining the province of experience (*Concerning human intellect:* Sceptical doubts, pars. 1 and 2 *et passim*). That positive knowledge should be deducible from axioms of a seemingly metaphysical character is certainly most remarkable. We seem to be reverting from modern physics to the natural philosophy of the ancient Greeks. But the anomaly and anachronism disappear if the second instance, as well as the first (MIND, *loc. cit.*, p. 229), is explained as a case of induction, induction of the kind which Mill regards as adequate to support the propositions claimed by Whewell as *à priori:* "experimental proof crowds in upon us in such endless profusion, and without one instance in which there can be even a suspicion of an exception to the rule" (*Logic*, Book II., ch. vi., § 4).

IV. Application of Probabilities to Conduct.

The use of "mathematical expectation" as a guide to conduct is the principal application which we have to consider. "In order to obtain a measure of what ought to be our preference in regard to various alternative courses of action we must sum for each course of action a series of terms made up of the amounts of good which may attach to each of its possible consequences, each multiplied by its appropriate probability" (p. 311). Against this maxim Mr. Keynes brings three objections of which the first two appear not very formidable.

First, there is renewed with respect to the product of probability and prospective good a difficulty which we have already encountered—and, I trust, overcome—the difficulty ascribed to the want of numerical precision. "Normal ethical theory at the present day, if there can be said to be any such, makes two assumptions: first, that degrees of goodness are numerically measurable and arithmetically additive, and second, that degrees of probability also are numerically measurable" (p. 311). There seems to be here set up, in order to be knocked down, a somewhat exaggerated claim on behalf of utilitarian ethics. With respect to the second factor of Expectation, *viz.*, Probability, we need not postulate greater precision than we have already claimed on the model of physical mensuration as interpreted by Profs. Eddington and Love. The authority of Poincaré may be quoted for treating satisfaction (subjective good) in the same spirit. In a letter to Walras (the mathematical economist)

the great mathematician rules: "Satisfaction then is a magnitude, but not a measurable magnitude". But it is not "par cela seul exclue de toute spéculation mathématique" (see *Economic Journal*, 1915, p. 57, for reference and fuller quotation). It deserves, indeed, to be considered whether, when we are dealing with this subjective quantity, the use of a unit such as I have proposed (*Mathematical Psychics*, Part II.), namely the "just perceivable increment" (of pleasurable feeling), does not come to much the same as the use of subdivisions analogous to those employed by Prof. Eddington with respect to physical quantity. "The subdivision," he writes, "must be continued until the meshes are so small that all points in one mesh can be considered identical within the limits of experimental detection" (*Space, Time and Gravitation*, p. 77). But without insisting on these refinements, is it not evident that without having more exact relations than those of "more" and "less" we can infer that the product of a and b, ab, is greater than $a\beta$ if it is given that $a>a$, $b>\beta$? We can make this inference even without the second datum, if it is known that a is very much greater than a, while b is known not to be much greater than β. As before about magnitudes of one dimension, may there not be clear perceptions of greater and less without numerical precision? To go back to the heroic age, if Priam saw that Ajax was taller and broader than the other Greeks, would he not perceive that the area subtended by the figure of Ajax was greater than that of the others? Might he not have observed the same of Ulysses compared with Agamemnon, if the former, though (slightly) shorter, had been (very much) broader than the latter:—

> "Μείων μὲν κεφαλὴν Ἀγαμέμνονος Ἀτρεΐδαο,
> Εὐρύτερος δ' ὤμοισιν ἰδὲ στέρνοισιν ἴδεσθαι." (Iliad III., 193-4.)

A second difficulty is raised in connexion with what is termed the "Weight" of a probability. "Weight" is defined by the statement that "an accession of new evidence increases the *weight* of an argument" (ch. vi.). How should we be influenced in our choice of a course of action by the "weight" of that probability which is a factor of the Expectation? The question may be answered in terms of the analogy presented by the theory of errors-of-observation. Suppose that there are given a finite number of observations, which it is required to combine so as to obtain the best possible value for the object under measurement. It is not necessary with our author to fix attention on the most probable value, and the probable error as measured therefrom

(p. 74). It is better, as I have elsewhere pointed out, with Laplace to seek, not that combination of the given observations which is most probably (most frequently in the long run of similar data) right, but the one which, minimising the detriment incident to the use of fallible observations, maximises the Expectation of useful results. In short there is applied to the treatment of observations the principle which should govern all conduct considered as part of a "series," a rule to be universally adopted. The significance of Laplace's conception appears in Simon Newcomb's estimates of the "Good" and "Evil" pertaining to astronomical observations (*American Journal of Mathematics*, vol. viii., no. 4). As a first-rate mathematical economist the great astronomer was prepared to handle quantities less definite and measureable than the objective magnitudes with which the physicist has usually to deal. In the common case of numerous observations mathematical theory affords an *index* of the detriment. In general that detriment increases with the increase, and decreases with the decrease, of the "spread" or "scatter" of the observations as defined by the mean square of their deviation from the true point. Thus in the example given in our Section II. (if OX = x) the mean square of deviation is

$$\{(x - x_1)^2 + (x - x_2)^2 + \ldots + (x - x_n)^2\} \div n.$$

Now let us suppose that the mean square pertaining to (observations made with) a particular instrument has been ascertained from a long series of trials prior to the measurement for which we have to prescribe. The longer the series (*ceteris paribus*), the more accurate will be the determination of the mean square of error. Let us take the *reciprocal* of the mean square as index of the *worth* of a measurement with that instrument (what is called "weight" by Laplace and his followers); and let us say that the "evidential weight" (Keynes, ch. vi.) of "worth" is greater the more extensive the previous experience on which it is based. Then of two instruments or methods of measurement for which the ostensible *worth* is the same that one is to be preferred for which the *evidential weight* is greater. But, if there is a difference in worth as well as in evidential weight, it is conceivable that a measurement of somewhat less worth but considerably greater evidential weight than another might be preferable to that other. I leave it to the reader to construct an analogue of this mathematical theory applicable to ordinary life.

It will be found, I think, that the second objection only gives us pause when it is associated with the *third*, that

which arises when an action is regarded as solitary, not forming part of a long run or "series". To exhibit this difficulty is, I think, the main purport of the Petersburg problem; though not the only lesson which it conveys. The problem is thus stated by Mr. Keynes: "Peter engages to pay Paul one shilling if a head appears at the first toss of a coin, two shillings if it does not appear until the second, and in general 2^{r-1} shillings if no head appears until the rth toss. What is the value of Paul's expectation?" (p. 316). The mathematical answer is: if the number of tosses is not in any case to exceed n in all, $\frac{1}{2}n$ shillings; and if this restriction is removed, an infinite sum. Mr. Keynes appears to great advantage in the discussion of this problem; his logical acumen enhanced by his unusually wide acquaintance with the foreign literature of Probabilities. I take as a text for some general reflexions his summary of the different reasons which have been assigned for the fact that (n being large) no sensible person would give for Paul's chances anything like the mathematical expectation. "Each of the above solutions probably contains a great part of the psychological explanation. We are unwilling to be Paul partly because we do not believe Peter will pay us if we have good fortune in the tossing, partly because we do not know what we should do with so much money or sand or hydrogen if we won it, partly because we do not believe we ever should win it, and partly because we do not think it would be a rational act to risk an infinite sum or even a very large sum for an infinitely larger one whose attainment is infinitely unlikely" (p. 319).

I take these points in the order of the summary.

We do not believe that Peter will pay us a sum which may be vastly in excess of his means. This objection is met by the ingenious suggestion which Mr. Keynes cites from a foreign authority that the stakes should be (not shillings or francs, but) grains of sand or molecules of hydrogen (p. 317).

We should not know what to do with so much money or sand, we might have a surfeit of winnings, by reason of the law of diminishing utility; which was, I believe, first formulated in connexion with the Petersburg problem. Referring to the law that the value of a sum of money to a man varies with the amount he already possesses, Mr. Keynes asks "Does the value of an amount of goodness also vary in this way? May it not be true that the addition of a given good to a man who already enjoys much good is less good than its bestowal on a man who has little?" (p. 320). This *ἀπορία* recalls the precept of the late Cohen Stuart for dis-

tributing the burden of taxation; that each taxpayer should forgo, not an *equal amount* of satisfaction, but, an *equal percentage* of the total satisfaction which he derives from his income (see *Economic Journal*, 1897, p. 559 and context). Cohen Stuart's criterion has been adopted by some sensible persons, notably Prof. Seligman, and the late Leonard Courtney.

We do not believe that our winnings will ever be immense, if we hold with D'Alembert and Dr. Marbe (pp. 317, 365) that long runs are not only very improbable, but do not occur at all. Experiment gives no colour of verification to this statement. Yet *à priori* on grounds of general experience I am prepared to find that some sort of periodicity in the manner of making the experiments, the way of projecting the coin, for instance, would result in a certain *correlation* between the observations; and accordingly that the convergence of the average, and likewise the frequency of runs, would not be exactly what the regulation formula enounces (in terms of n the total number of tosses). This consideration would not indeed rule out indefinitely long runs. Still, as Dr. Venn observes in this connexion (*op. cit.*, p. 83), "there are so many instances in nature of proposed laws which hold within narrow limits but get egregiously astray when we attempt to push them to great lengths, that we must give at best but a qualified assent to the formula". Accordingly I am not disposed with Mr. Keynes to dismiss as trivial the observations obtained by recording the results of trials made with instruments of chance (p. 366). This experience may satisfy not merely "a certain idle curiosity," but also a certain scientific interest. One would like to know, for instance, the explanation of the difference between the results of Prof. Pearson's and Dr. Marbe's investigations. The former, on examining 33,000 coups at the roulette table of Monte Carlo, found the frequency of long runs greatly in excess of the regulation proportion; the latter, on examining 80,000 coups, found that the long runs were greatly in defect (p. 365).

The lesson which the Petersburg problem is specially adapted to convey is connected with the *third* and most serious of the objections to the use of mathematical expectation as the guide of action. It is seen to be no longer a safe guide in the case of transactions which cannot be regarded as forming part of a "series" in Dr. Venn's sense. How far the proposed case is from fulfilling that condition will appear if we consider what changes of statement would be required in order to render the problem amenable to the

calculus of probabilities. We should suppose that the offer made to Paul is renewed from time to time; say repeated every day throughout a whole year. Also the amount that he can possibly win on any one day should be finite and moderate. Say, Peter will give the same as before in case Head turns up at the first, second, third, or fourth toss; but that if it turns up after the fourth toss, however long after—however long the run of Tails—Peter will still give no more than he will give if Head turns up at the fourth toss, that is, 8s. Then Paul's Expectation is shown by the following scheme:—

Winnings . . .	1	2	4	8
Probability . .	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{8}$

Multiplying each figure on the upper line by the corresponding figure on the lower line, and adding the products, we obtain for the amount which Paul may expect to win in the course of the year $2{\cdot}5 \times 365 = 912{\cdot}5$s. It may be shown that the odds against his winnings not falling below 730s. in the year are thousands to one. He might count on not losing if he offered 2s. a day for the expectation; on gaining materially if he offered only 1s. 6d. Now restore the terms beyond the fourth toss; and as before let Paul have a chance of 1 in 16 of winning 8s., 1 in 32 of winning 16s., and so on. There will reappear prospects which cannot be fitted into a "series". *A fortiori* if the number of days on which the trial is made were smaller. In such a case it is rightly decided, I think, by Mr. Keynes that "even if we are able to range goods in order of magnitude and also their probabilities in an order of magnitude," yet it does not follow that the product of each good and the corresponding probability is the measure of expediency, or "oughtness". "A new direct judgment" may be required to combine properly the judgment of goodness and the judgment of probability (p. 316).

Now to which type, the Petersburg problem or our curtailed version thereof, do actions in real life belong mostly? The former is certainly altogether unparalleled. The latter too appears extreme in the opposite sense. "Series," and still less "cross-series," are not so perfect as to make the realisation of the mathematical expectation a practical certainty. In private life occasions occur requiring that we should act for the nonce so to speak, or at least without anticipating a succession of similar actions which would afford a practical certainty of advantage in the long run. In public life the same sort of choice may occur. Two persons may agree as to the ends which are desirable. They may

agree too as to the probability that certain means, say some very progressive measure, will bring about the desired ends. Yet they may differ as to the advisability of adopting those means. One may think the other a fool. But there is no recognised canon of wisdom whereby to test folly in such cases. Utilitarian philosophy has been too silent about this difficulty.

Conclusion.

As the outcome of the preceding discussions the following summary answers to the enquiries stated at the outset are in conclusion submitted:—

(1) That probability in general presents gradations has not been disproved. It seems usually possible to arrange probabilities relating to different cases, if *in eodem genere*, in an order of magnitude, to say that one is greater than another. The examples adduced by Mr. Keynes show, indeed, that the degrees of belief are often few and far from fine. Thus when we cannot forecast the weather, the barometer being high but the clouds black, when accordingly we hesitate between the actions proper to rain and to fair weather (Keynes, p. 30), is not our state of belief intermediate between two degrees of practical certitude: that it either will or will not rain? Outside these degrees lie in general the two extreme limits formed by absolute or mathematical certainty, denoted respectively by 0 and 1. With respect to position on this sort of scale, probabilities which are not *in eodem genere*, for example the probabilities of two propositions of which one rests more on number of observations, the other on completeness of analogy (*loc. cit.*), *do* seem to admit of comparison. The question whether the judgment that one event is more likely than another implies the belief that in the long run that one will occur more often than the other must be answered—if a simple direct answer is required—in the negative. And yet there is often present, or apt to be presented, some reference to frequency of occurrence. Thus in the above instance of our judgment about the doubtful prospects of the weather we should be prepared to find that in exact meteorological records the observed signs—high barometer with black clouds, of a certain description—would as often as not (in the same locality and season and *ceteris paribus*) be followed by rain as by fair weather. According as probabilities are more finely graduated and more fully based on statistical experience the determination of that degree of probability which it is proper to attach to given

evidence approaches the character of objective science. Otherwise our judgments about probabilities have only that sort of universality which belongs to the standard of taste in art.

(2) New light is thrown by Mr. Keynes on the *à priori* probabilities, sometimes ascribed to the Principle of Sufficient Reason, which play a considerable part both in social science and in Physics. He strengthens the defence of these propositions against Dr. Venn's polemic. At the same time Mr. Keynes exhibits and guards against the errors and exaggerations to which the Principle of Sufficient Reason has often led. He confirms by a new argument (p. 381) the objection that, if (as commonly assumed in dealing with errors-of-observation) one value of a measurable object is as likely *à priori* to be the true one as another, then any *function* (*e.g.*, the square or the square-root) of that object—or any function (other than simple addition) of two or more magnitudes (*e.g.* their product)—will not comply with assumption. One value of the function will not be *à priori* as probable as another. And yet the function of an object is itself an object. If we supposed that for each kind of variable—length, area, angle, and so forth in each variety of circumstance—there is *some* function of the measurable object which has *à priori* equally distributed values, we might understand equi-probability of distribution as true in a sense on the average of all cases. But it is sufficient to postulate in each case that the *à priori* values are not distributed *very unequally*. Any ordinary degree of *à priori* inequality will be effaced by a correspondingly large amount of *à posteriori* observation. This effacement of *à priori* evidence through the multiplication of instances seems to justify the "Rule of Succession" when employed as a verification of induction based on repeated observations.

(3) Dealing with the Logic of Statistics, Mr. Keynes reaffirms effectively the important truth that the Methods of Induction are largely dependent on pre-existent knowledge. Part of the "abstract and essence of past experience," to use the phrase of Dr. Marshall, is the circumstance that lines of investigation often do not cross each other. There are water-tight compartments in Nature. The chemist may perform his experiments without attending to the conjunctures of the planets. This character of natural law seems closely connected with that *independence* which plays a great part in Probabilities. Independence is the prime condition for the fulfilment of that "law of error" (or deviation of magnitudes from their average) which Quetelet and Galton

have celebrated. That an *ἀρχὴ* so little Baconian as Mr. Keynes' "atomic character of natural law" should support a generalisation so positive and matter-of-fact as the fulfilment of an arithmetically expressed formula by objects in Nature is a paradox deserving the attention of philosophers.

(4) The use of mathematical Expectation as a guide to conduct is not barred by the difficulty of obtaining precise data. Nor does much practical importance attach to a scruple which may be expressed by reference to errors-of-observation, as follows. For the purpose of measuring an object we ought (*a*) to prefer that instrument or method of which the precision or *worth* is greatest. Supposing now that this worth is inferred from the behaviour of the compared instruments or methods in the course of experience prior to the measurement in hand, we ought (*b*) to prefer that one for which the worth is most accurately ascertained; other things and in particular the preference prescribed under head (*a*) being the same. But what if as between two alternatives one excels in respect of (*a*), the other of (*b*)! Much more serious is the difficulty which arises when we have to prescribe for action which cannot be regarded as part of a "series"—a long run in the course of which the Expectation will be realised. This *ἀπορία* forms the main (though not the only) interest of the Petersburg problem. Mr. Keynes well argues that some principle, other than mathematical Expectation, is required as the guide of conduct in such circumstances. Utilitarian philosophy has not hitherto furnished such a principle.

There are many other points in Mr. Keynes' treatise which call for notice. But I am not writing a review of the treatise; only examining how far the novelties therein require modification of my own previously expressed views. I will, however, mention some of the topics passed over; in the hope that they may be discussed by some of the philosophers who read MIND.

I have already alluded to an investigation which I did not follow up, that which relates to the use of Analogy (Keynes, Part III.). Another promising enquiry relates to the nature and measurement of Risk. What value attaches to the "conventional coefficient of weight and risk" given in this connexion? (p. 315). This is one of the many questions concerning the use of scientific language which confront this reader of the treatise. What is the value of the Symbolism which pervades the book? Is it as helpful to the student of Probabilities as mathematical symbols are to the student of Economics? In making this comparison the

mathematician must take into account that in the one case, that of mathematical economics, he already knows the symbolic language; whereas in the present case he has the trouble of learning a new language. What advantage is obtained by proposed changes of nomenclature; in particular the peculiar use of the term "correlation," and the attribution of probability to the truth of a *proposition* rather than the arrival of an *event?* Many interesting questions are suggested by the rehandling of classical problems. Thus with regard to the application of Probabilities to Testimony, when Mr. Keynes argues that in certain cases the "conventional formula" is admissible, does he materially reduce the "opprobrium of mathematics" which Mill attributes to the classical theory of testimony? Would Mr. Keynes stand by the answer which he gives to the argument used by De Morgan after Laplace concluding that "there was a necessary cause in the formation of the solar system for the inclinations being what they are" (so nearly identical)? "The answer to this," says Mr. Keynes, "was pointed out by D'Alembert" . . . "De Morgan could have reached a similar result *whatever* the configuration might have been" (pp. 293-294). A whole host of questions are raised by the author's criticism of his predecessors.

I cannot pass over as irrelevant to the present study the topics included in the last comprehensive heading. I cannot consistently with views above expressed appear to acquiesce in the frequent disparaging remarks and occasional sweeping denunciations which the author bestows on his eminent predecessors. Laplace, Poisson, Quetelet, Cournot, Mill, Jevons, and many others, even his favourite author Lexis in one passage at least (p. 401), all according to him have gone astray. I find it, indeed, necessary to defend myself against the imputation of attaching too much importance to the opinions of one who attaches so little importance to the opinions of the leading authorities on the subject. The imputation would no doubt be serious with respect to some sciences. But it is a peculiarity of our study, one which it shares with economics, that you can retain respect for one who speaks disrespectfully of high authorities. In explanation of this peculiarity it may be remarked that the classical writers in both subjects often express themselves carelessly. Ricardo, as Dr. Marshall has said, was too spare of words. He did not always duly emphasise the distinction between long and short periods. He left it to be inferred that he understood the part played by Demand in the determination of Value. Similarly Poisson in a passage criticised by Mr.

Keynes (p. 348) omits from his statement of a problem a condition which was obviously present to his mind. Laplace and some of his followers probably understood the nature of antecedent probabilities and the necessity of taking them into account better than might be supposed from their elliptical expressions. In criticising the classical writers some "generosity," in Dr. Marshall's phrase, is required. But while preaching literary generosity let us not be unjust to those who are deficient in that quality. We must admit that intellectual sympathy does not always go with originality. Of wide application is what Jevons said of some censorious genius: his own opinions are much more valuable than his opinions about other people's opinions. Censoriousness is especially venial when it refers to faults not inferred from omission, but actually committed. The distinguished living economist who thought it worth while to point out (among other criticisms of the classical economists) that a passage in Mill's chapter on Rent (*Pol. Econ.*, Book II., ch. xvi., § 3, par. 1) is inaccurate remains a distinguished economist. Some of Mr. Keynes' criticisms seem to be of this type; not damaging much the reputation of either author or critic. A parallel to Mr. Keynes' depreciation of Laplace may be found in the work of an original economist whom Mill praises highly for his illuminating views on *Capital*, Dr. John Rae. Like Mr. Keynes, Rae does not mince his expressions of dissent. "Unsoundness of the system maintained in the *Wealth of Nations*" . . . "detected fallacy in the speculations even of Adam Smith" . . . "fundamental error in the general principles of his system" . . . "inconsistencies and contradictions" . . . "all along erroneous"—such are among the expressions referring to the Father of Political Economy. And yet Rae is praised in the highest terms by J. S. Mill. Mill's words may be transferred, with the alteration of a name only, Laplace being substituted for Adam Smith, to the case before us. "The author unites much knowledge, an original vein of thought, a considerable turn for philosophical generalities. . . . The principal fault of the book is the position of antagonism in which, with the controversial spirit apt to be found in those who have new thoughts upon old subjects, he has placed himself towards Adam Smith. I call this a fault (though I think many of the criticisms just and some of them far-seeing). . . ."

II.—SENSE-DATA AND SENSIBLE APPEARANCES IN SIZE-DISTANCE PERCEPTION.

By H. N. Randle.

By sense-datum or pure sensation seems to be meant a hypothetical psychical process corresponding to, or a function of, an elementary physiological process. It is usually admitted that no one ever experiences a sense-datum in its purity, but it is sometimes suggested that we approximate to such an experience when we break through the habitual nexus of associates so that the sensory element appears in a novel setting: as, for example, when we turn the printed page upside down, and regard the S's and the 8's in this novel position. Certainly the sensible appearance changes under changed conditions, but it is a question whether the novel sensible appearance is ever any nearer to being a pure sensation than is the familiar sensible appearance. It might be thought that the appearance of the inverted S or 8 approximates to the pure sensation because it is a more accurate representation of the actual "retinal image," and therefore can more truly be described as a psychical process which is a function of the elementary physiological process, *i.e.*, of the retinal image. I propose in what follows to consider the size-distance percept with special reference to the assumption that there are to be found in it sense-data as defined above.

I begin with the phenomenon of the diminished sensible magnitude of an object in monocular vision when the eye is accommodated for a nearer point. With one eye closed place the point of a pen midway between the other eye and a page of print, keeping the eye fixed on the pen-point. What happens, then, is that the print becomes amazingly small. I still regard this as an unquestionable example of sensible appearance of magnitude varying in complete independence of the size of the retinal image, although it was suggested to me[1] that the shrinkage could be explained on optical prin-

[1] By Mr. W. G. P. Wall, of the Indian Educational Service.

ciples, since the increased curvature of the lens as accommodated for the very near pen-point must result in the image of the print (beyond the pen-point) now coming to a focus in front of the retina instead of on the retina: the image thus formed in front of the retina being smaller than the image which is formed on the retina when the eye is accommodated for the print. Some blurring occurs, such as should occur when an image comes to a focus in front of (or behind) the retina.

And yet the explanation involves a difficulty of a fundamental character, if offered as a *physiological* explanation of the shrinkage in sensible size, as corresponding with a shrinkage in the retinal area affected. For the optical 'image' of smaller size formed in front of the retina, is not a physiological fact at all. The only physiological fact that could concern us would be the image as formed on the retina: and this would not be a decreased, but a blurred, image. If we are conscious of the smaller 'image' (in the optical sense), then our 'sensation of extensity' corresponds to something which is certainly a physical and objective fact, but (quite as certainly) is not a physiological fact. To put it plainly we should see an 'image' which is not on the retina at all.

And this explanation cannot be given of the same phenomenon as it occurs in binocular vision,—both eyes now converging on the nearer pen-point. The same shrinkage of objects beyond fixation-point occurs; and it is usually stated that it can occur without any blurring at all, in the case of an observer who can dissociate near convergence from near accommodation; that is, who can converge his eyes on the pen-point, and yet keep the lens accommodated for the print. I cannot do this, and therefore cannot verify this statement.

Other examples, in which the necessity of a 'psychological' as opposed to a 'physiological' explanation seems to be generally admitted, are to be found in the varying appearances of the visual after-sensation according to the plane and direction of projection. "Produce an after-image of the sun, and look at your finger-tip: it will be smaller than your nail. Project it on the table, and it will be as big as a strawberry; on the wall, as large as a plate; on yonder mountain, bigger than a house. And yet it is an unchanged retinal impression."[1] It is impossible to assign a fixed extensity-value to the retinal impression in this case for the image "feels" amazingly expanded (or contracted) under the different

[1] James, *Principles of Psychology*, II., p. 231.

conditions of projection. The feeling of magnitude here is certainly not a function of the magnitude of the retinal impression. And a still more striking case of the determination of the sensible appearance by psychological conditions and its independence of elementary physiological processes, is provided by the changed shape of the after-sensation according to the direction of its projection. If an after-sensation of a cross with the arm at right angles to the upright be formed and projected upon the upper corner of the wall, the cross is seen slant-legged.[1] The retinal impression remains presumably the same in whatever direction the eyes turn, but the "sensory value" of the retinal after-image differs in strict correspondence with the direction of the eye. The sensory variation in such figure-direction percepts must receive a psychological explanation. Such illusions as the Zöllner pattern and the Müller-Lyer illusion provide other familiar examples of psychologically conditioned sensible appearances.

The fundamental importance of these facts for a theory of perception is not sufficiently realised. They tend to be treated as exceptional cases, interesting psychical curiosities, but essentially different, in their generative conditions, from normal perceptions. But so far are such cases from being exceptional that in them sensible appearance reveals its true character in unambiguous clearness; so much so, that to realise thoroughly their typical character is to achieve a revolution in standpoint. The common feature in such cases is the impossibility of finding any fixed 'sense-datum' corresponding to the retinal impression. And what is here submitted is that this feature is not the exception, but the rule; that there never is any fixed relation discoverable between an elementary physiological process and an elementary psychological 'sense-datum'.

There is, of course, nothing new in this position. On the contrary physiology now-a-days seems to have advanced definitely to the conception of the integrative functioning

[1] James (*Principles*, vol. ii., p. 283) points out that "our retina now holds the image which a cross of square shape throws when in front, but which a cross of the slant-legged pattern would throw provided it were actually on the wall in the distant place at which we look". Elsewhere he remarks (vol. i., p. 263) that "no object not probable, no object which we are not incessantly practised in reproducing, can acquire this vividness in imagination". You cannot therefore make the after-sensation of a straight line appear bent by projection on the angle of wall and ceiling, because real straight lines never do look bent under any circumstances. (Pathological conditions in retinitis will distort an objective straight line, see Myers, *Exp. Psych.*, p. 227.)

of the nervous system, and physiological atomism appears to have become as obsolete as psychological atomism is often asserted to be. But popular psychology is still under the influence of a way of thinking which the professed psychologist has rejected; and perhaps this influence, even now, prevents us from fully realising how the problem which Hume set to Kant has been changed by a process of psychological analysis which has gradually undermined Locke's "way of ideas"—or at any rate its sensationalistic starting-point. For to deny that there is any elementary mental fact which is a fixed function of an elementary physiological fact is to deny the existence of the sense-datum.

I turn now to the assertion that there are in consciousness primitive sense-data corresponding to the retinal impression —direct feelings of retinal magnitude, for example—but that these are obscured by perception of real size, or imagined "normal sensible appearance"; and that we can by introspective effort or training become aware of these "primitive sensibles" even in cases in which they are ordinarily eclipsed by the normal sensible appearance. To put it concretely, I cannot help "seeing" the corner of the ceiling of this room as a right angle: and yet, it is said, if I had had the advantages of James' young draughtsman[1] I should be able to "see" it as an obtuse angle: to feel directly the retinal direction of the lines. Therefore the retinal direction of the lines must be present as a primitive sensible element in consciousness, otherwise the young draughtsman could never learn to feel it directly.

So far as I am concerned, I am convinced that I cannot learn to feel the "retinal direction" of the lines in such cases, however hard I try. I simply *must* see the angle as a right angle, and I can only draw it perspectively by methods of trial and failure which are guided by my knowledge of the perspective law that the vertical lines which bound the wall, being real parallels, must recede as they get further from me, and of the fact that the upper part of the wall is further from me than the lower part. If I want to "see" the perspective effect I can do it only by visual superposition,—as the artist measures perspective magnitudes by a length of his pencil held between eye and object. And I see no reason to suppose that the artist may have a capacity in which I seem to myself to be very deficient, of introspectively perceiving the perspective or retinal values of objects.[2]

[1] James, *Principles*, vol. ii., p. 179.

[2] In the case of magnitudes, unlike figures, there is no difficulty in most cases in becoming aware of a sensible appearance distinct from 'real' size.

What happens to the young draughtsman when he learns perspective? James tells us that his training consists in "his learning to feel directly the retinal (*i.e.*, the primitively sensible) magnitudes of objects". If that were so he would never learn to draw at all; for there is no such thing as a feeling of retinal magnitude. His task is in one way very much easier than the task which James would set him,—easier in so far as it is at least not impossible of achievement,—but in another way much more difficult than it is represented to be by the traditional sensationalist psychology. For according to this psychology all the artist has to do is to forget his percepts and attend to his "primitive sensations". There is the picture all ready drawn for him in two dimensions on the retina of his eye,—all he has to do is to copy it on a piece of paper. But, if there is really no more than this in the artist's cunning, it is surprising that mankind took so many thousands of years to hit on the simple device, and that even now in many parts of the world where a fairly high development of the arts exists the laws of perspective are very imperfectly known. It is surely impossible to believe that the trick is as simple as the psychologists would have us believe,—that we need only draw the curtain of meanings to behold the fairest tree of art, whose fruit is excellent and within the reach of all. (It is hard to resist the temptation to misquote Berkeley's short and easy way with the mysteries of science, in this connexion; for its analogy with the psychologist's short cut to the pictorial arts leaps to the eye.) As against this view that the craft of the artist is a kind of ignorance, or withdrawing from reality,—a view which reminds us of Plato's contention that the painter's picture is twice removed from reality,—the suggestion may be put forward (tentatively, as not being based on any knowledge of the history of the arts, but rather as an *a priori* presumption) that every advance in the technique of the draughtsman must have gone hand in hand with, and been based upon, an advance in science. It was no light matter to play tricks with the third dimension, to gather up into one plane and spread upon a superficies the depths of space, and to translate the solid world upon a sheet of paper. For perception is apprehension under a tridimensional schema, and draughtsmanship the finding of

But then the sensible appearance is never identical with the perspective or retinal value. *Vide infra*. If the draughtsman reproduces perspective magnitude with photographic fidelity, then he reproduces on his paper something different from the sensible appearance,—something other than what he sees.

the correlate schema in two dimensions. Nature no doubt translates the former set of relations into the latter, upon the retina of the eye. But it is the former set of relations, the world in three dimensions, that is given to us in perception, —not its projection on the retina. We have no primitive sensibles corresponding to the retinal impressions. And if we would copy Nature's draughtsmanship, we must laboriously learn her formulæ for transmuting the tri-dimensional schema into the very different schema of two dimensions.

The question of the relation of perspective values to sensible appearance brings us face to face with one form of the problem of the relation of appearances to reality in perception; and with one form of the question whether any way can be found of dealing with appearances other than the subjectivist way of putting their existence 'in the mind'. If appearance meant perspective, we could answer the latter question in the affirmative. Reid thoroughly appreciated the objective character of the perspective sizes and shapes of things, and his rejection of the "way of ideas" carried with it the recognition that the varying perspective values of objects do not exist "in" the mind. The visual angles subtended by things at different distances, their visual superposition values with reference to each other at different distances, are as objectively real as their "real" magnitudes and shapes are,—the former have as good a claim to a place in the physical world as the latter have. It is a real relation that lines from the extremities of (say) a stick converging on points at varying distances from the stick will form different angles.[1] And genuine perspective perception is the perception of such objective facts. It is (*e.g.*) the perception of the different angles subtended according to the distance between the stick and point. "Real" perception is the perception of another objective fact, *viz.*, the magnitude-relation of two objects in the same plane, or as considered in the same plane; or their contact value. There is no reason to class the latter fact as objective and the former as subjective. If the former is "in the mind" then the latter is also "in the mind". The former, or perspective size, has been regarded as subjective, or 'in the mind' because it varies; whereas 'real' size does not. But, of course, perspective size is

[1] There is therefore nothing to prevent a blind man from understanding perspective. *Cp.* the "*Caecus duo bacilla tenens*" of Descartes, quoted in Berkeley's appendix to the second edition of his *New Theory of Vision*: Fraser's *Berkeley*, vol. i. (1871), p. 109. His sensory language may be 'kinæsthetic,' a language of pushes and strains; but the meaning is conveyed just the same.

invariable in precisely the same sense in which real size is invariable. And the facts perceived constitute as good a reality in the case of perspective, as in the case of 'real,' magnitude.

The confusion between this sort of relativity (which is inherent in the objective reality of the thing) with the other sort of relativity (subjectivity) seems to have come about in the case of perspective because perspective has been (unjustifiably) identified by psychologists with bare sensation of retinal magnitude or directions. The perspective magnitude has been put first of all in the eye; and then in the mind. The artist, James has told us, learns to feel directly the "retinal (*i.e.*, the primitively sensible) magnitudes of objects". You first call the perspective magnitude "retinal": then you call it "primitively sensible". The perspective magnitude is now in your head,—in your mind: a sensation. And so the field of perception comes to be divided into (*a*) real sizes and shapes, outside the mind, (*b*) perspective "distortions," which, as identified with sense-data, are inside the mind.

But the perceptual world cannot long remain in the uncomfortably divided condition to which this in-and-out theory would reduce it; and the "real" magnitudes and shapes of things will effect an entry into the mind along with the sense-data, once the door is opened. For "sensation" is the door by which the world gets into the mind, and unless theory of knowledge succeeds in establishing a no-thoroughfare here, it will never keep the world at its proper distance. It is because we are convinced of this that we would keep primitive sensations of retinal magnitudes out of our analysis of size-perception, if we can do so without misreporting the facts.

We *can* see both 'real' magnitudes and shapes, and perspective magnitudes and shapes. Perspective magnitudes, though they are not normal objects of visual perception, nevertheless are, or can become, objects, just as much as "real" sizes and real shapes. But it is not possible by any effort of psychological analysis or any amount of psychological training to find the perspective distortion in the form of a primitive sense-datum, underlying the perception "in your mind". There is no such sense-datum in your mind, and therefore you will not find it there. But there are perspective relations in the external world, and if you want to find them it is outwards that you must direct your attention, not inwards: into the world, not into the mind.

Simple observation alone will not discover in most cases,

"how things really look,"—as we wrongly express it,—and if we want to realise correct perspective values, we shall have to fall back on an experiment of visual superposition. It sounds paradoxical to say that we do not see the perspective appearances,—that we do not see "how things really look". But it is the simple truth: and the suggestion of paradox is wholly due to the somewhat unfortunate phraseology of the distinction between "appearances" and "realities". It would be better, instead of "appearances" (in this sense) to speak of perspective values or effects. But it is difficult to find any acceptable phrase which would serve as a substitute for "real," as opposed to perspective, size and shape. Berkeley substitutes 'tangible' for 'real'; identifying visible with perspective. But this phraseology could not be adopted without accepting the more objectionable features in his theory of vision. And yet there is an instinct for truth underlying his identification of real with tangible magnitudes and figures. For the criterion of "real" size is contact, so that instead of real size, one might perhaps use the phrase contact-size. But contact-size is not the same as tangible size, though the words are derivatives from the same stem: for "touch" has obviously different senses when we speak of two objects touching one another and when we speak of ourselves as perceiving objects by touch. Berkeley's tangible magnitude strictly interpreted refers to the latter: and this may be as much a 'mere appearance' as visible magnitude may be. We may perceive real (or contact) magnitude through touch, just as we may through sight: but sometimes at any rate what is perceived through touch is a mere appearance, and there is no guarantee that the magnitude as felt will be real.

The identification of sensible appearances with the real perspective values of objects, which seems to be very generally made, has no grounds beyond the assumption (itself false) that retinal impressions have a fixed sensory value. It seems then to follow from this assumption that, as the retinal impression is a true representation of the perspective value of the object, so must the sensible appearance be,—the sensible appearance (or at any rate the primitive sense-datum) being regarded as a fixed function of the retinal impression. But the facts are obvious enough, and they afford conclusive evidence that sensible appearances do not correspond with actual perspective magnitudes.[1]

[1] James clearly recognises that "we end by ascribing no absolute import whatever to the retinal space-feeling which at any moment we may receive. So complete does this overlooking of retinal magnitude become

I look out of my window and see one of the arches of the verandah through it. The perspective breadth of the arch is visually superposed by about half the breadth of the window. A piece of pencil is lying on the table—I judge that, if I lifted it, it would superpose twice upon the arch. I make the experiment and find to my no small surprise that half the pencil covers the whole arch. As for the relation between the window and the pencil, the window looks so much bigger that it seems useless to judge,—however I make an estimate, and judge that five or six pencil-lengths will completely fill the window in visual superposition. On trial I find that about once and one-third the pencil length fills the window.

The amount of error made in unsophisticated guessing of visual superposition-values would be a suitable subject for experimental enquiry. If I can generalise from my own case, there would be a large and constant over-estimation of the visual superposition-value of things further off, with reference to things nearer. But the point I wish to bring out is that the "visible magnitude" of objects is ordinarily neither their perspective (visual superposition) value, nor their "real" (contact) value,—but something in between perspective-magnitude and contact-magnitude. Visual magnitude is in fact a compromise between perspective size and "real" size. It is neither a fixed function of visual angles, nor is it a fixed function of "real" magnitude. It tries to be both, perhaps; but manages to be neither. At any rate it seems clear that in such cases there are not merely two things, *viz.*: (*a*) "real," and (*b*) perspective magnitude; but three things (*a*) real magnitude, (*b*) sensible magnitude, and (*c*) perspective magnitude.

Real magnitude and perspective magnitude are both alike objective or physical facts. Visual magnitude in most cases does not correspond to any objective fact. But on the other hand, visual magnitude is certainly not a pure sensation, or sense-datum. This is where psychology from Locke onwards has so consistently gone astray. Take for instance Berkeley's distinction between "pictures" and "images" as expounded in his *New Theory Vindicated*, of which I shall speak in more detail below. Berkeley assumes without argument that the "picture" is given,—is a sense-datum simply proportional to the "image": and the picture, he insists, is the immediate object of vision. So that visual

that it is next to impossible to compare the visual magnitudes of objects at different distances without making the experiment of superposition. We cannot say beforehand how much of a distant house or tree our finger will cover." This is exactly the fact referred to here. (James, vol. ii., p. 179.)

magnitude proper is simply proportional to the image: and the image is the perspective magnitude.

This, as we have just pointed out, is quite false. Visual magnitude is a resultant of many determinants, of which perspective value (retinal impression) is only one among many. Berkeley of course is aware that things usually present an appearance different from their perspective magnitude: but he denies that this sort of "appearance" is the proper object of vision. It is (he holds) the effect of "suggestion,"—which brings to the mind the "tangible" (or real) magnitude, in place of the visual (or perspective) magnitude. But, in the first place he has not realised how invariably the actual "appearance" (whether you regard it as visual or not) is something different both from perspective magnitude and from real (or contact) magnitude. And, in the second place, he has not made out a case for any such distinction as he assumes to exist between the given visual magnitude and the suggested tangible magnitude. The truth is that the only "visual magnitude" which introspection can discover is never a given, but always a product of "suggestion": and that it does not normally coincide either with the perspective magnitude (of which he regards "visible magnitude" as a fixed function) or with real magnitude (which he calls "tangible" magnitude, but which would more properly be called contact-magnitude).

A very enlightening illustration of the nature of the "sensible appearance" is the apparent magnitudes of the sun and moon. We do not always see the sun and moon the same size. They look much bigger near the horizon than at the zenith: and the moon looks smaller when seen through a telescope,—(although in the latter case the retinal image is many times magnified,—another example of the obvious fact that visible size is not a fixed function of retinal impression). These phenomena provide interesting examples of the traditional treatment of size-perception. The case of the moon's looking smaller when seen through a telescope is usually said to involve a "secondary deception," the effect, so to say, destroying its own cause. The case is analysed thus: (1) the actual retinal image is, and is seen as, larger; (2) as an effect of this, we judge that the moon is near; (3) this judgment of nearness makes us see the thing smaller,—because if the moon is so near as it seems it must really be quite small, or its retinal image would be enormously bigger. It is supposed in fact, that the "sensation" corresponding to the magnified retinal image gives rise to a judgement of nearness; and that this judgment of nearness then destroys

its own cause, the sensation of largeness, and generates in place of it a perception of smallness. The converse case is that of the apparent bigness of the moon when near the horizon, of which the following analysis is often given. The image is dim, being seen through a greater density of atmosphere; and is seen over an intervening space broken up by trees, etc.: both circumstances carry the suggestion of distance. But since its distance thus seems greater than when it is high in the sky, we cannot help judging that it must be bigger than usual, in order to produce the usual retinal image when its distance from us (apparently) has increased. And so we *see* it as bigger. There is a "secondary deception" here too,—for I actually see the moon nearer to me, when close to the horizon,—presumably because (*a*) on account of its apparent distance, (*b*) I judge that it is bigger than usual, and see it bigger, and so (*c*) I *judge* that after all it must be nearer than usual, and *see* it as nearer![1]

There are no limits to the possibilities of such epicycles of explanation: but their necessity may well be doubted. Get away from the presupposition that we have an immediate feeling of retinal magnitude, and the whole complication vanishes,—for the supposed difficulty does not exist when once it is realised that retinal magnitude as such has no sensory value at all,—that we are not even aware of it. I simply do not know that the "image" of the moon is magnified through the telescope. There is no primary deception, and consequently no "secondary deception"; and the percipient subject may plead not guilty to the charge of harbouring this amazing tissue of lies in the soul. His perception of the size of the moon whether seen through the telescope or at the zenith, or on the horizon, is a function of the perceptual universe to which it happens to belong. As correlate of the universe which is seen in the field of the telescope the moon becomes visibly small. Why should it become small? Because the telescope makes space collapse. The moon looks smaller because it is reduced automatically to the scale of a new perceptual schema. The moon projected on a nearer plane is the moon of a smaller world, and so suffers shrinkage to match the world, of which it is a function. Similarly the moon on the horizon looks bigger because the perceptual world is a bigger world horizontally than it is vertically and so needs a bigger moon as its correlate. The over-arching heaven is seen as a very much flattened dome;

[1] But sensible appearance does not necessarily correspond with our judgment. Often it persists when our judgment contradicts it. This point is considered below.

and the changes in the perceived size of sun and moon, as they climb to the zenith and descend again, are proportional to the flattening of the arch. It is to be noted that the apparent magnitudes of the heavenly bodies obey precisely the rule which governs the apparent magnitudes of after-sensations. An after-sensation projected into a distant plane looks bigger, projected into a near plane looks smaller: but this is just how the visible magnitude of the moon behaves. It is because the visible sizes of sun and moon have not been recognised as simple functions of the perceptual schema that psychologists have been forced to invent the hypothesis of "double deception," in an effort to explain their changing appearance.

It may be that this 'telescoping' of space is partly conditioned by a change in the size of the retinal impression. But there is no reason whatever to assume the existence of a direct and primary awareness, or "primitive sensibility," of retinal magnitude. The change in retinal impression, working with other conditions, manifests itself to us, primarily and directly, as a modification of the general perceptual schema, a modification which can be roughly expressed by saying that things have come nearer, or that a section of space has disappeared, or that there is a collapse of planes: so that the magnitude of an object as perceived by us is never a bare feeling of retinal magnitude, but is always the product of 'relative suggestion'.[1]

The supposition of perceptual "schema" as determinant of the percept has forced itself upon psychologists in the attempt to explain a variety of apparently anomalous phenomena of perception. Dr. Myers puts it forward as an explanation of the phenomenon of vision known as auto-kinetic sensation,[2] *i.e.*, apparent lateral displacement of seen objects without eye-movement. He makes the same suggestion with regard to the size-distance percept, in the case of the variable size of the 'after-sensation' according to the distance of fixation-point,[3] pointing out that in this case "the subject does not consciously take into account the distance of the fixation-point". He brings under the same category the exaggeration in the visual magnitude of familiar objects seen through fog, remarking that "both in the case of the after-images, and in the case of objects seen through a

[1] Stout, *Analytic Psychology* (1902), vol. ii., ch. vi., especially pp. 68-72. But Dr. Stout finds the starting point of perception in "sensory impressions which are not themselves distinguished and identified".

[2] *Text-Book of Experimental Psychology*, 1911, Part I., p. 230.

[3] *Op. cit.*, p. 282.

fog, the estimation of distance does not consciously affect that of size. Yet primarily the apparent size must be dependent on some unconscious influence of distance. Possibly we have here a schema or unconscious disposition in regard to the distance of objects. And when this schema undergoes change, it manifests itself in consciousness by effecting a change in apparent size, whereupon the apparent size determines our awareness of the distance of the object." Similarly with regard to the apparent sizes of the sun and moon, after pointing out that the form of the sky is an important factor in the illusion, he states that "it is this apparently greater distance of the sky and of celestial bodies (at the horizon) which, although not actually recognised, yet affects an unconscious schema, and this leads to an apparent enlargement of the heavenly bodies where they rise and set."[1]

The interest of these passages is their rejection of the traditional view of the percept as a working up of given sensory data, and their clear recognition of the fact that the sensible appearance is primarily and directly determined, not by any "feeling" of distance, or "feeling" of retinal magnitude, but by something other than a sense-datum,—something which Dr. Myers calls a schema or unconscious disposition. (It will be noticed that he equates the behaviour of the after-image with that of *luna humilis* and *sublimis*.)

With a view to elucidation of the determinants of sensible magnitude one turns naturally to the classical analysis of the size-distance percept given by Berkeley. It was one of those puzzles of size-distance perception dependent on shift of perceptual schema (Barrow's problem) which provided him with a starting-point for his *New Theory of Vision*. Two of the principles of interpretation which he lays down call for mention; the first because it is true, the second because it is false. The first is that the conditions, or determinants, of size-distance perception work together to produce a joint resultant.[2] The effect produced depends on the totality of determinants. We should add, what Berkeley does not, that any attempt to assign a fixed sensory value to any one determinant, must break down. "It is not faintness anyhow applied that suggests greater magnitude; there being no necessary connexion between these two things. . . . Faintness, as well as all other ideas or perceptions" (we should prefer to say, conditions) "which suggest magnitude or distance, does it in the same way that words suggest the

[1] *Op. cit.*, pp. 293-294.
[2] *New Theorg of Vision*, §§ 72 and 73. *Cp.* Stout, *op. cit.*, *loc. cit.*

notions to which they are annexed. Now it is known a word pronounced with certain circumstances, or in a certain context with other words, hath not always the same import and signification that it hath when pronounced in some other circumstances, or different context of words." The other principle to which we refer is that no idea which is not itself perceived can be the means of perceiving another idea. From this principle Berkeley draws the conclusion that the accepted optical explanations of size-distance perception are wrong, for "those lines and angles mentioned in optics are not themselves perceived. Hence the mind does not perceive distance by lines and angles." The principle means that the determinants of size-distance perception must themselves be facts of a sensory or perceptual order. This is not true. The conditions which determine perception need not themselves be sensations or sensible appearances; they may be conditions precedent of any sensible appearance.

The insertion of hypothetical sensations (local signs, retinal extensity sensations, etc.), for the existence of which there is no trace of introspective evidence, to serve as connecting links between (presumably) nervous processes and perception, has been carried by the psychologist to unjustifiable lengths. In the first place, as we have said, there is no introspective evidence for these supposed sensory elements. And in the second place, the supposition of them introduces gratuitous difficulties into the psychological analysis. I am referring in particular to the insistence of psychologists upon a primitive sensation of retinal magnitude,—which, as we have seen, leads to an absurd "double deception" analysis of certain size-distance percepts. We are told that we see the moon at the horizon as distant; and therefore we see it as large; and therefore we see it as near. This amounts to a chain of percepts each determining the next in the series, with an absurd result. Now there is no introspective evidence that we see the moon distant: and, if we did, it would be psychologically impossible at the same time to see it near. The only possible result of such a rivalry of perceptions would be an alternation of the competing percepts, with a moon dancing a very disconcerting to-and-from *coranto* on the horizon. The fact, however, is that we do not see the moon as distant, and it is false to assign the percept of a distant moon as the determinant of our perception of a large and near moon. The determinant of perceived size in this case (as in the case of the projected 'after-sensation'; and as in the case of shrinkage of further objects in near vision when accommodation or convergence is effected for a nearer object) is the perceptual schema.

This means that the determinant of visible magnitude is after all not a percept, but a general shift of standpoint,[1] which, so far from being determined by a percept, is the condition constitutive of all objects as perceived at the moment. The schema is the form of the total experience, and is not capable of analysis into any set of sensational or perceptual elements, just because it is the condition underlying all the perceptual facts.

And here we come to a fundamental divergence in the behaviour of two different classes of apparent magnitudes. The size of the moon is a mere function of the schema, and so is the size of visual after-images. But the size of familiar objects seen through fog obeys a directly contrary rule,—they suffer magnification instead of diminution when illusorily located in a nearer plane. The same thing happens when you look across an unnoticed gap in the ground at figures on the other side. They look surprisingly bigger because a piece of the middle distance has been stolen and space has collapsed upon the observer. In cases like this objects refuse reduction to the scale of a nearer and contracted world, in virtue of what Berkeley calls a 'praenotion'[2] or what James would call the imagined normal sensible size. (But the normal sensible size in this sense is not one fixed sensible appearance —"that which we get when the object is at the distance most propitious for exact visual discrimination of its details".[3] The normal sensible magnitude of an object is those varying sensible magnitudes which experience teaches us that it ought to have in different planes.) Familiar objects at familiar distances carry this prenotion. We tend to see them with their "normal sensible appearance" at each plane of

[1] How far physiological conditions of this shift can be found remains to be seen. See James, vol. ii., pp. 216-217. "The size of the field of view varies enormously in all three dimensions without our being able to assign with any definiteness the process in the visual tract on which the variation depends. . . . In general the maximum feeling of depth or distance seems to take the lead in determining the apparent magnitude of the whole field and the two other dimensions seem to follow. . . . But when we ask ourselves what changes in the eye determine how great this maximum feeling of depth or distance shall be, we find ourselves unable to point to any one of them as being its absolutely regular concomitant." See also p. 213, where he draws attention to the "sensible recession of the maximum distance" which occurs on looking at a landscape with head inverted. Also pp. 269-270, footnote. No doubt physiological conditions exist: but certainly they are nothing like that "image on the retina" of which the sense-datum is popularly supposed to be a kind of literal point-to-point transcription.

[2] Berkeley, *Vindication*, § 59.

[3] James, *Principles*.

projection. When therefore the figure of a man in a fog is illusorily projected into a nearer plane, our 'prenotion' assigns to the figure its normal sensible magnitude in that plane, and we see it big, as we should see it if it actually were as near as that. And yet, in spite of the unconciously determined shift of schema which has thus determined the sensible appearance we are aware that the figure is really further off, and we are surprised to find "how big it looks".[1]

The former class of objects may be called objects with functional visual magnitude, because their sensible appearance is a simple function of the schema without interference from any "prenotions". The latter class may be called objects with normal visual magnitude, because their sensible appearance is determined by a prenotion of their normal appearance at any given plane of projection. The principle obeyed by the one class of objects is diametrically opposed to the principle which governs the other class; for objects with functional visual magnitude (such as after-sensations, and the apparent magnitudes of heavenly bodies) have a visual magnitude inversely proportional to the distance of the plane of projection; while objects with normal visual magnitude have a visual magnitude directly proportional to the distance of the plane of projection.

Berkeley lays stress on *situation* as one of the determinants of the size-distance percept, and I propose now to consider the sections of the *Vindication*[2] which set forth his views on this point. His position is complicated partly by the peculiar meaning he attaches to 'image' here; and partly by the assumption which he makes (in common with most subsequent psychology) of the existence of "pictures" proportional to "images," *i.e.*, sense-data corresponding to, and functions of, perspective projections. Berkeley expounds the "image" and its function by the supposition of "a diaphanous plain erected near the eye, perpendicular to the horizon (*i.e.*, to the horizontal plane) and divided into small equal squares". A line from the eye to the limit of the "horizontal plain" passes through the centre square. Lines from the nearest portions of the horizontal plane pass through the lowest squares. "The eye sees all the parts and objects in the horizontal plain through certain corresponding squares of the perpendicular diaphanous plain. Those that occupy most squares have the greatest visible extension, which is

[1] A case in which "judgment" fails to dispel the illusion. The determinant prenotion is working at a deeper level, and a notion "above the threshold of consciousness" has no power over it.

[2] *New Theory of Vision Vindicated*, §§ 48 to 61.

proportional to the squares. But the tangible (real) magnitudes of objects are not judged proportional thereto. For those that are seen through the upper squares shall be judged vastly bigger than those seen through the lower squares, though occupying the same or a much greater number of those equal squares in the diaphanous plain." (They are not merely judged bigger, but seem bigger. The visual idea is "expanded".) The 'diaphanous plain' is, of course, not the retina, and situation of the "image" does not mean absolute retinal situation. Eye-movement makes no difference to situation in Berkeley's sense; though of course it alters situation on the retina. (Any attempt to apply here a doctrine of fixed 'local signs,' corresponding to retinal situations, as determinants of visual magnitude, would have to take this into account. The difficulty is perhaps not insurmountable. And there is some evidence for the supposition that different situations on the retina have different magnitude-values,—whether primitively or as the result of experience.)

Berkeley points out that the 'images' and the 'diaphanous plain' are altogether of a 'tangible' nature, *i.e.*, facts of the objective or physical order. But he holds that there is a psychical entity—a visual sense-datum, or 'picture' corresponding to these physical or 'tangible' facts. "There are pictures relative to those images; and those pictures have an order among themselves, answering to the situation of the images, in respect of which order they are said to be higher and lower. These pictures are also more or less faint; they, and not the images, being in truth the visible objects. Therefore what hath been said of the images must in strictness be understood of the corresponding pictures, whose faintness, situation, and magnitude being immediately perceived by sight, do all three concur in suggesting the magnitude of tangible objects (real magnitude)."

It seems clear that in this appeal to fixed situations on a plane erected near the eye Berkeley falls into the very procedure which he condemns in contemporary optical explanations of the size-distance percept.[1] For fixed situations in a plane erected outside the eye are not sense-data, any more than are the lines and angles outside the body, by which geometrical optics measures size and distance; and they have therefore no proper place in the sensationalist's psychology of

[1] *New Theory of Vision*, §§ 10 to 13. His principle is that "no idea which is not itself perceived can be to me the means of perceiving any other idea". But the lines and angles of geometrical optics are not themselves perceived.

perception. It may be said that the pictures corresponding to (retinal) images and situations are sense-data. But these 'pictures' are very equivocal entities. A 'picture' may mean one or other of two things (i) sense-datum, the hypothetical psychical entity corresponding to retinal impression; (ii) sensible appearance, the product of 'prenotions' and of the schema. It is really the latter alone that could give us those fixed "situations" to which Berkeley appeals. But of course Berkeley's "picture" cannot be the sensible appearance (*i.e.*, the suggested size-distance, or the "expanded idea") for the "picture" is appealed to as the bare visual datum, the determinant or suggester; and it cannot at the same time be the determined, or suggested, percept. What Berkeley does is to make his picture both these incompatibles at once: and that is why he is able to invest the "pictures" with distinctions described in the question-begging words horizontal and vertical. The sensible appearances of an already tri-dimensional world admit of these distinctions. But sense-data do not. And even if we cut out the reference to the third dimension which these words imply, and confine ourselves to upper and lower situation of the pictures, the fact remains that 'situation' implies an objective order as given. Berkeley's diaphanous plain is already objectified; and it is this objectivity that allows Berkeley to speak of upper and lower situation in his 'pictures'.

The confusion arises because Berkeley is trying to get done on the level of sensory or presentational consciousness, work which is already done for, but not through, sensible appearances; work of which we have presentations only in its resultant, the sensible appearance or percept. The "pictures" to which Berkeley appeals here as determinants, are already determined or schematised: they are no mere raw-material for thought to work up into a world: they are already pictures of a world,—even if it be only of a world in two dimensions.

And, incidentally, there does not seem to be any reason whatever for supposing the existence of a primitive object of vision schematised in two dimensions only. The motive for such a supposition is of course obvious enough,—the sense-datum is thought to be somehow proportional to the retinal image, and the retinal image is of course in two dimensions.[1] *Ergo* the primitive visual datum can only be a representation or picture in two dimensions. Distance is a line turned endwise to the eyes and cannot be represented in two dimensions

[1] Though it is worth noting that the retina is not a plane surface.

on the retina,—*ergo*, it cannot be 'represented' in perception. It seems incredible that theory of knowledge should have been dominated by so crude a conception, but it certainly has been so dominated. And the reason is that psychology accepted the existence of a sense-datum proportional to, or a function of, retinal impression.

A study of the conditions under which judgment, or conscious change of viewpoint, can alter the sensible appearance, is badly needed. The general rule seems to be (and this is the only real justification for regarding sensible appearances as something "given") that the sensible appearance is not normally subject to alteration by a conflicting judgment. The determinants of the sensible appearance must work through the schema, or general form, of the experience. But yet there are numerous cases in which judgment can alter the percept: for example those double-perspective geometrical figures which can be made to assume one or other of two alternative sensible appearances, more or less as the result of a conscious and deliberate change of viewpoint. (I say 'more or less,' because to some extent the appearance changes spontaneously and againat your will,—an unconscious determination defying your conscious attempt to determine the percept.) But this power to determine percepts obviously works within narrow limits only: you cannot see the straight stick thrust half under water as straight, or the moon on the horizon as equal in size to the moon at the zenith, or five miles of middle and far distance as perspectively smaller than a few feet of foreground,—however hard you may try. The sensible appearances have been pre-determined, and consciousness, operating so to speak externally, is powerless to interfere with them.

Berkeley's 'prenotions' stand for meanings constitutive of the sensible appearance. As such, they no longer exist as merely separable meanings (judgments) external to the sensible appearance: they exist as immanent in and constitutive of the sensible appearance. The merely external and separable meaning (*i.e.*, the judgment) may be, and very often is, contradictory of the immanent or constitutive meaning of the sensible appearance. The law of contradiction cannot prevent us from seeing one thing and judging another. Perception or sensible appearance is not judgment-made; though it is meaning-made.

The 'picture' corresponding to the 'horizontal image' of Berkeley is determined by the prenotion (immanent or constitutive meaning) of the foreshortening of lines turned endwise to the eye. If you measure the perspective value of five miles of flat country against your walking-stick held erect it

is but an infinitesimal fraction of your stick that is superposed on the five miles of landscape. But now incline your stick into a more or less horizontal position, endwise to your eyes, and of course the reverse becomes true; the further landscape will be beneath a larger part of the stick's length. And that is how you see the prospect,—you are incapable of seeing the actual perspective value, because your schema of perception carries with it the 'prenotion' of foreshortening as an immanent meaning constitutive of the sensible appearance.

This analysis of the size-distance percept has aimed at bringing out the fact that the sensible appearance is in every respect the reverse of that hypothethical entity the sense-datum,—being, as it is, the fluid product of an elaborately constructive schematism of perception. Starting with the denial of the sense-datum, the analysis ends with the affirmation of the sensible appearance. It remains to emphasise some of the points of difference between the former and the latter.

By drawing a clear distinction between the psychological fact, the sensible appearance, and the psychologist's fiction, the sense-datum, we definitely reject that misleading psychological metaphor which makes of sensations or sense-data the raw material of knowledge, the stuff on which the mind operates. There is no such stuff of knowledge, no such raw material, introspectively discoverable; and, if there were, mind could not operate with such refractory material, for nothing could be done with it beyond that combining and disjoining to which (consistently enough) the older psychology confined the functions of the intellect. Reid observes,[1] "It is a very fine and a just observation of Locke that, as no human art can create a single particle of matter, and the whole extent of our power over the material world consists in compounding, combining, and disjoining the matter made to our hands; so in the world of thought, the materials are all made by nature and can only be variously combined and disjoined by us". But in fact the mind is an artist whose art is not of this base mechanic order. It is formative of its own materials. Dr. Stout[2] has drawn attention to the passage in which Hume admits the ability of the mind to supply a missing shade in a series of shades of a colour, independently of previous experience.[3] Hume remarks that

[1] *Enquiry*, chap. v., § vii., Locke's *Essay*, II., xii., 1.
[2] *Analytic Psychology* (1902), vol. ii., p. 54.
[3] Hume's *Treatise*, I., i, 1.

"the instance is so particular and singular that 'tis scarce worth our observing,"—so blind could a preconception of the mechanical nature of mental operations make an acute observer, to the significance of a phenomenon such as this of 'relative suggestion,' which pervades the whole work of the mind. The outstanding feature of the sensible appearance is its plasticity and fluidity, as contrasted with the stubborn and superficial rigidity of the sense-datum. Its boundary lines are not fixed, and there is always more in it than 'meets the eye'. In view of the infinitely complex cross-currents of meaning which carry and constitute it, the so-called image, however determinate and 'given' it may be at the moment of its appearance in consciousness (and it always *seems* to be a given and determinate thing), nevertheless has more of expression than of impression in it; and its possibilities as expressive of the real nature of things, are not subject to the limitations which the supposed impression (or sense-datum) seems to carry with it. In this connexion I would emphasise the point that the sensible appearance is not *superficial*. The truth is that the superficies (the supposed sense-datum) cannot be separated from the depth of meaning which constitutes and underlies the sensible appearance. The sensible appearance is (so to speak) essentially tri-dimensional. Indeed the perception of the third dimension in space is possible only because the sensible appearance has this 'third dimension' of experience, namely immanent and constitutive meaning. Berkeley's difficulty about the perception of distance, as being a line turned endwise to the fund of the eye, does really arise from his reduction of the sensible appearance to the merely superficial image. And part of the difficulty as regards the apprehension of substance is of a similar order. Crudely put it amounts simply to this, that the image or sense-impression only reveals the outside or surface of the object,—that we can never hope to see inside things. A superficial image which has no depth of immanent meaning might gives us the qualities which form, so to speak, the surface of things, but it can never give us the thing in its substantiality, transparent in three dimensions. Our 'senses' can, no doubt, give us any number of cross-sections of substance; but never substance in its solid integrity. But, in truth, we do "see" distance, and we do "see" things solid: the defect is not in our sense-perception, but in the misleading analysis of sense-perception into sense-data.

Again, the sense-datum is supposed to *precede* a meaning which it subsequently acquires; whereas the sensible appearance is inseparable from and *preconditioned* by the

meaning which it expresses. I can find no reason to believe in the existence of a meaningless impression. It seems to me that, logically and psychologically, meaning is the presupposition and condition precedent of every sensible appearance; sensible appearances being never impressional, but always expressional, in nature. Sensible appearances are the language in which the poetic faculty of mind tries to find, under limitations, an expression, not altogether inadequate, for those meanings which we call physical facts. The sensible appearances are 'unreal' in so far as they are incomplete and inadequate expressions of the meanings. We have not tried to show that the sensible appearance is ever a completely adequate expression of the real (for it never is), but only that it is very much more than an 'image,'—that it has the plasticity which is characteristic of an effort to express a meaning. But if what Berkeley delighted to call the Divine Visual Language is charged with a meaning greater than it can express we need not so far detach and "immobilise" it as to make it appear incapable of conveying any meaning whatever.[1]

There is another aspect of the difference between the sense-datum and the sensible appearance, which may be exemplified in the obvious fact that we can perceive motion: but which, in its fullest implication, means no less a difference than that between a connected experience and a disconnected system of floating 'ideas'. Experience is not connected through 'ideas' and on the surface, but in the depth through meanings,—and to confine it to superficial impressions—sense-data—is necessarily to disintegrate it. Lockian 'ideas' are but the flotsam of a universe wrecked on a false psychology, and out of the flotsam popular psychology labours in vain to reconstruct the continuity of the real world as given in perception. The entirely gratuitous difficulty which is often felt about the perception of motion, in particular, simply arises from the substitution of sense-data for the truly functional thought-element, the sensible appearance. There can be no sense-datum or impression of movement, because

[1] *Cp.* Bergson's dictum "Percevoir signifie immobiliser" (*Matière et Mémoire*, p. 232, Paris: 1913). Bergson's "pure percept" has a suspicious resemblance to the sense-datum. As Höffding points out "Bergson makes too great and too external a difference between the immediate given and the psychical activity. Nothing is given to us, no subject arises, without psychical activity, whether we notice it, or whether we do not" (Höffding, *Modern Philosophers*, English translation, p. 247). But Bergson teaches the better way of regarding perception in such passages as *Matière et Mémoire* (Paris: 1913), p. 232—"Elle s'étale immobile, en surface, mais elle vit et vibre en profondeur".

the sense-datum, like the individual cinematographic film, stands for a moment of rest, and though you may attempt to counterfeit continuity (as the cinematograph does) by filling the interstices of your fragmentary sense-data with an infinity of sub-conscious impressions or *petites perceptions*, you will never succeed in passing from instantaneous immobilities to a moving continuity. But there is no reason why the moving continuity should not find expression in the sensible appearance, though it defies every attempt to reduce it to a series of 'impressions of sense'. The sensible appearance of movement is a sufficiently familiar experience, and one about which, if the psychologist had asked no leading questions, introspection would have told no lies. It is not wonderful that behaviourist psychology should attempt to ignore consciousness, as not having any functional significance in the thought-process, seeing that traditional psychology has confined consciousness to *simulacra*, which by their immobility and detachment are debarred from playing any rôle in the moving drama of experience,—being, like Berkeley's ideas, 'visibly inactive'.

III.—MR. RUSSELL'S THEORY OF THE EXTERNAL WORLD.

By C. A. Strong.

In his recently published *Analysis of Mind* Mr. Russell reiterates the neo-realistic or phenomenalistic theory which he first developed in *Our Knowledge of the External World*, but now in the setting of a sensationalistic psychology and metaphysics. As I am in complete sympathy with such a psychology, and have myself tried to work out a metaphysics which finds the type of the real in sensation, my observations in the following article will be made from a near and friendly point of view. If he will allow me to say so, I admire his psychology immensely; but I have some reserves to make in regard to his theory of knowledge.

I.

Mr. Russell agrees with the neo-realists in holding that matter and mind represent two different ways of arranging a single stuff, 'experience' or 'sensation'—namely, in perspectives of physical objects and in biographies. He differs from them, first, in admitting that those perspectives which are appearances to us human beings are immediately dependent on events inside our bodies, and more or less distorted by the medium of nerves and brain through which they are perceived; whereas other neo-realists hold, I think, that the perspectives are accurate visions of things as they exist outside us. We may be sure that, if Mr. Russell makes this admission, it is because the facts have been too much for him; his natural tendency is to think that the colours we see actually exist, as they seem to, in things outside us.

What are the facts which necessitate this admission? They are, first, the time and space relations of visual appearances—the fact that they show us events as occurring, not at the moment when they do occur, but at the moment when the report of them reaches the body; the fact that they show us objects, not in their true shape and dimensions, but as

they must appear from the point of view of the body, *i.e.*, with a certain amount of perspective distortion. They are, secondly, such exceptional visual phenomena as after-images and *muscae volitantes*, which show that an appearance, due in reality wholly to causes within the body, may yet be seen outside it, just as if it existed there. These facts prove that objects and events outside the body are conditions of what is seen and heard *only indirectly*, and that the one and only immediate condition is the event in the nervous system.

This state of things, of course, gives rise to the *crux* of realistic theories, namely, to explain how a sensation that varies directly only with one physical object, the nervous system, can yet vary with another physical object sufficiently to give knowledge of it. The commonest answer is that it varies with the nervous system only as to its occurrence or non-occurrence, but that as to what it shows us, *i.e.*, the qualities and their spatial arrangement, it varies directly with the object. The trouble with this answer is that it is in conflict with the facts. The sensation does vary with the object, in all those cases where it gives correct knowledge of it, but it does not do so directly; it varies directly only with the brain-process, and with the object *in case* the brain-process varies with it. If the brain-process does not vary with the object —as, for instance, when we have taken a dose of santonin— the sensation will give false knowledge of it, *i.e.*, all visible objects will be tinged with yellow. And, in all cases, we may say, the sensation is better adapted to give knowledge of the brain-process than to give knowledge of the external object.

The other common answer is that you must not pay any attention to physiological facts when you are discussing such deep questions as the nature of knowledge, for, if you do, you get into difficulties with your intuitive theory of knowing and are tempted to believe in things which you cannot logically prove. Mr. Russell deserves credit for recognising the facts and seeking to square his theory with them; though I am not sure that he makes any attempt to explain *why* reality should be tied into so peculiar a knot. Yet a rounded and adequate theory of perception should explain not only how this function is related to the object, but also how it is related to the brain; it should account for both these relations of the mind to matter. Mr. Russell, I think, contents himself with the fact that perception *is* connected with the brain, and lets it go at that.

He agrees with the neo-realists, again, in holding that objects continue to exist when we no longer see or touch

them; indeed, he would of course not be a realist at all if he did not hold this. But other neo-realists, I think, suppose objects when not perceived to be exactly like what they are when perceived, and to retain the very colours and the very spatial arrangement which we perceive them to have. Mr. Russell cannot admit this, since the nature of what we perceive is determined at least in large part by the medium of nerves and brain through which we perceive them; and he therefore maintains that those perspectives which are not given to human beings or animals are very unlike those perspectives which are. They are still perspectives, *nota bene*, but they are very unlike.

We shall perhaps not misrepresent him if we say that, at the points of space which are reached by light from an object, there is something, of the nature of sensation, but as unlike what we see as the physical process occurring there is unlike the process occurring in the brain. Let us, for convenience, describe this something as a 'sub-sensation'. Now, I have a difficulty with the notion that a sub-sensation is a perspective. The formation of a perspective seems to be impossible without a lens, to draw the light-rays coming from each point of an object together into a corresponding point on a retina or plate, thus forming an image. In discussing sub-sensations Mr. Russell has mentioned the plate, but he has not mentioned the lens; yet, without it, *all* the points of the object (*i.e.*, on this surface of it) would send light-rays to *each* point of the plate, and all the light-rays would be confused together, and there would be no image or perspective. Indeed, when we consider that there are light-rays entering that point from all quarters of the heavens, it is evident that, apart from such a process of analysis as the lens permits, what exists there is only a synthesis of effects, and not anything like the stars from which the rays proceeded. I can hardly suppose that Mr. Russell, with his competent knowledge of physics, has overlooked this point, and yet it appears plainly inconsistent with his description of the sub-sensations as perspectives or appearances.

Since, however, the perspectives can by analysis be separated out, let us assume, for argument's sake, that they are there, and that things existing unperceived are still perspectives; and let us come to the central point of the theory, the definition of the physical object as 'a system of perspectives'. A table, on this view, is not a single thing, existing separately from all the perspectives which you might have if you examined it from different points of view, but is simply a name for the sum of these perspectives. They alone are ultimate

constituents of reality. A star, in the same way, is a name for all the perspectives of it, as seen, photographed, or not even photographed, that are disseminated throughout the universe. And I suppose that the nuclear part of an atom is not a bit of matter, but a name for the perspectives that would appear to a physicist who should invent a super-microscope sufficiently powerful to reveal it.

What first strikes one in this theory is the curious reversal of the spatial position of objects which it seems to involve —objects being apparently everywhere except in the place where we see and feel them. Thus, as you approach a table, you get a better and better perspective of it until you are quite near, and then confused perspectives, and after that there is nothing. (If the perspectives were *views* of the table, not constituents of it, it would be quite intelligible that we should get them only from points outside itself.) But we must remember that, on Mr. Russell's theory, space has no existence except as an internal character of the perspectives: the continuous 'public' space, in which common sense supposes all objects to exist, is only a mental construction. So that what I have been saying is not that there is a real place with no perspectives in it, but only that no perspectives exist which are views of the table from that place. It is not the less a paradox that light should have to proceed from a place, in which there is no constituent of the object, as a condition of the arising of a perspective of it, and yet that the place (and, I suppose, the light too, with its velocity) should have no existence apart from this or some other perspective.

But the greatest paradox is that which arises with reference to time. To fix the object at a definite instant, we must take as our example of an object an *event*. There is a game played in England, of which I regret to say I have no personal experience, called cricket, in which the principal event is, I think, the batting of a ball. Let us take this event, happening at 12 o'clock on Thursday, as our example. It breaks up, on Mr. Russell's theory, into a great number of perspectives, partly in (or at least closely connected with) the bodies of the players and spectators, and partly in the air. Now each and every one of these perspectives is 'late,' by the time required for the light-rays to pass from the batsman's bat to the eyes of the spectators or to the points in the air. They therefore all happen after 12 o'clock. The paradox, then, is that a multitude of events, all happening after 12 o'clock, should be the constituents of an event happening at 12 o'clock.

It is no use pointing out that 12 o'clock is the mathematical limit of all the perspectives, to which we are necessarily led when we consider them as a system: that does not make the event at 12 o'clock any the more real. Of course Mr. Russell may escape from the difficulty, with all honours, by holding, as before in the case of space, that time is only an internal characteristic of the perspectives, and that they are not really themselves in time: but I am not sure that he wishes to be as transcendental as this. Doubtless his theory, as thus interpreted, would be an accurate transcript of the phenomenal facts; but solipsism is that. And it would be a a strange realism, surely, that maintained both that the perspectives are not in time, as they appear to be, and that the event at 12 o'clock did not really happen.

We may draw one inference from these paradoxes, and that is that the object, as physical science conceives it, is not correctly defined as the *system* of all the perspectives (even of the 'regular' ones, *i.e.*, those undistorted by the intervening medium), but is rather their mathematical limit. This is evidently true as regards its time; and its shape and size are not those of any of the perspectives, since these are all distorted, but are the shape and size of *that* object which, situated in the place where the object is seen, would produce the perspectives on the retinas and in the minds of observers, according to the laws of perspective. The physical object is the *implicate* of all the perspectives; its relation to them is somewhat like that of a Platonic idea to the particulars which constitute its exemplification. This is why the object is felt to be given, whole and entire, as it were, in each perspective.

This antithesis between the one physical object and the many perspectives exists alike, whether we regard the former as a real existence, or, with Mr. Russell, as only a mental construction. It may still be (so far as we have yet gone) that the only existences and, so to speak, metaphysical supports of the object are the appearances.

In any case, the appearances upon which an object depends for its reality cannot be the visual ones. For, if they were, what would happen to a table when you turned off the electricity and left it in the dark? The absence of light has suppressed not only the perspectives in human minds, but also those inferior perspectives upon which we relied to give continued existence to objects. And yet the table, according to common sense, exists just as truly and just as completely as when the light was on. Are we then to be realists for the sunshine and the electric light, but idealists for the dark?

But, of course, there are still the tactile appearances for us to fall back upon.

These suffice to maintain the table in existence so long as we actually touch it. But what happens if we take our hands away? What becomes of a penny when you put it in your pocket? Are there tactile appearances in immediate contact with it—for it is only there that tactile sensations are produced—and is it to these tactile sub-sensations that it owes its continued existence? Mr. Russell has not worked out his theory in detail for the case of tactile appearances, and I am obliged to proceed by surmise. But, if there are such tactile sub-sensations, then apparently the penny exists by producing tactile sub-sensations in the pocket, and the pocket in its turn by performing the like service for the penny. We have here another instance of that curious reversal of the spatial position of objects which seems to be involved in Mr. Russell's theory.

But, surely, these tactile phenomena in the penny and the pocket are *effects*, and they imply, each on its side, preceding causes in the pocket and in the penny respectively, which may also be of the nature of sub-sensations. Suppose what touches the penny is not the pocket but my hand. And let the penny be warm. Now, physically, any warmth that passes from the penny into my hand and produces sensations there is a gradual process, beginning in the penny and ending in my hand. One of two things, then. Either this process, so long as it remains in the penny, has no real existence, and the penny, when I put it back in my pocket, wholly ceases to be. Or else it pre-exists to my sensations, as their cause, and then, if we adopt Mr. Russell's metaphysical hypothesis, it will consist of sub-sensations.

It will be seen that I have accepted this hypothesis, and simply put the sub-sensations in a different place: not *beside* our own sensations, as something bearing a similar relation to the object, but *beyond* them, as that in which the being of the object consists. Or, to put it differently, I have conceived them, not as *other appearances*, but as *that which appears*.

II.

This, of course, is something that a philosopher who respects himself must not do. Sub-sensations, so conceived, are things in themselves, and things in themselves are unknowable. You cannot go beyond your own sensations, or the world as they present it to you. Moreover, if you did,

you would have *two* kinds of objects on your hands, the objects of experience and these objects of fancy, and you could not possibly explain how these two worlds of objects were joined into one.

The ultimate ground of this judgment is the assumption that sensible appearances are themselves the objects seen and touched, that they are existences, and that there is no accompanying element of belief, referring them to something other than themselves.

I shall try to show (1) that appearances are not existences, but only sensations *in so far as they are used as signs;* (2) that they are always (in cases where they give knowledge) accompanied by belief; (3) that the belief is to the effect that an object exists, having the characters which the appearance shows us. This belief is not a formulated one; it is only expressed in our acting as if the appearance showed us an object. The object is thus not inferred from the appearance, but directly known through it.

Mr. Russell accepts the phenomenalistic principle—as we may call the denial of the legitimacy of transcendence—and his theory is, in the main, the application of it to perception. Does he adhere to it strictly everywhere? The question is pertinent; for a principle which you can disregard when it becomes inconvenient is perhaps only a prejudice.

(1) Mr. Russell admits that we know the existence of other minds. Now other minds, on his view, are groups of sensations lying wholly beyond those that compose our minds. They are thus exactly in the position which I have suggested for the sub-sensations constituting physical objects. Yet he holds that they can be known. It is true that they are known, in his opinion, by inference; that he does not attribute to the inference complete logical rigour; and that he generously helps it out with a dose of irresistible belief. Now I do not understand the status of such belief in a phenomenalistic philosophy. I should argue, either that the belief was unjustified (and Mr. Russell does seem to retain it with a certain apologetic air), or that the philosophy was false.

(2) Mr. Russell's account of memory represents a complete departure from the phenomenalistic principle. If he were to follow here the pattern set by his account of perception, he would say that when we remember an event on a number of later occasions, as we often do, what is present to our minds is a series of images—or 'retrospectives,' as we might call them; that the past event is the temporal limit of these 'retrospectives,' a mere mental construction; and that to

suppose it was anything more, or ever really happened, involves the fallacy of things in themselves. Instead of this, he admits that the past experience or sensation lies wholly beyond the present memory-image, and can yet be known by means of it. What is more, he does not regard the knowledge as inferential, but as direct. But, if a present image can give knowledge of a past sensation, why cannot a present sensation give knowledge of a present or just preceding sub-sensation?

(3) Mr. Russell holds, I think I may say, that physical things are known to exist when they are no longer seen or touched. Is such knowledge really consistent with the phenomenalistic principle? He will again be obliged to eke out his logic with irresistible belief. For how is it possible that perception, which by its nature can only inform us of the existence of objects while we perceive them, should give us the slightest logical ground for inferring their existence when they are not perceived? Their reappearance is no proof; for it might be a re-creation. But if, when we see or touch them, the visual or tactile appearance is accompanied by a belief that something having those characters exists, then it is natural that its existence, which is independent of its appearing, should continue when the appearance ceases. Thus the continued existence of objects follows intelligibly from anti-phenomenalism, but not from phenomenalism.

Mr. Russell believes, as we have seen, that the perspectives which are not appearances to human beings or animals are quite unlike those which are; and I have given a reason for thinking that they are not even perspectives. If so, sub-sensations *behind* the visual appearance could hardly be more unlike it than these sub-sensations *beside* it. And they have the advantage that an act of cognition (cognition as I have above analysed it) is directly brought to bear upon them: so that we have means of knowing their existence. That the substance of things—though still of the nature of sensation—must be somewhat unlike their appearances, is evident from the fact that the visual and tactile appearances are unlike. Now we cannot suppose that objects persist in the two separate forms of perspectives and, so to say, contacts—that the same object consists, when unperceived, of these two different kinds of sub-sensations: on the contrary, there must be but one kind of sub-sensations, and the difference between visual and tactile appearances must be relative to us.

What is even more important, we cannot suppose that there are two different kinds of space existing externally,

one visual and the other tactile, but must assume that the space we see is the same space as that which we touch. We thus reaffirm what is, to my mind, the most vital tenet of common sense—the unity and continuity of space. And the same argument leads us to the unity and continuity of time. I cannot get over my surprise at Mr. Russell's singular contentment with a world that is discontinuous.

Now let us compare the metaphysics I have sketched with his metaphysics, from the point of view of economy of thought. At first sight his system might seem to be the simpler—since he assumes only appearances, while I assume appearances and things that appear. (My appearances, as I have said and shall soon explain at greater length, are only sensations in so far as they are used as signs.) But Mr. Russell assumes for each object an infinite number of perspectives, all of which are actual; and as the world contains (we may say) an infinite number of objects, that makes the total number of actual perspectives infinitely infinite. Whereas, on my theory, the only actual perspectives are those which appear to some man or animal, all the others being merely possible; and, apart from perspectives, what exists is simply the sub-sensations constituting the object. If *entia non sunt multiplicanda praeter necessitatem*, as Mr. Russell insists, it seems to me that my theory has the advantage.

III.

I have now dealt pretty completely with Mr. Russell's theory so far as it concerns the relation between appearances and objects; and I turn to the relation between appearances and sensations. I believe that, as he fails to make a necessary distinction, or at least fails to conceive correctly the distinction, between appearances and the things that appear, so he fails to make a necessary distinction between appearances and the sensations which convey them; and that the whole situation becomes very much clearer when this distinction is properly made.

I say he does not make it; but, in point of fact, he has made it, though not, I think, with all the desirable clearness, in his analysis of memory. After explaining that a memory consists of an image, accompanied by a belief, to the effect that 'this occurred,' he says that of course the 'this' does not refer to the image as a present existence; and adds that the belief confers upon the image something called 'meaning'. Now I do not wish to be over-critical, and urge that

the 'meaning,' being *that which* is believed, is at least logically prior to the belief, and presumably is not conferred on the image by the belief but by some other mental function. Let it suffice that Mr. Russell has here explicitly recognised that cognition, at any rate in the case of memory, involves a category which is distinct from the image as a present mental state, without being on that account identical with the object. And what I shall now try to show is that a similar distinction requires to be made in the case of sensation.

When, for instance, an outer object acts on the body and calls forth a visual sensation, that is not the whole account of what happens: for (at least if the object is to be one distinctly perceived) we turn our attention, *i.e.*, fix our gaze, in the direction of the object, and accommodate the eye-muscles to it in such a way that it is seen as at a certain distance. Sensation and motion, in other words, converge upon the object, and the datum of vision is not simply the sensation, but the sensation as referred to that spot—it is not the sensation as an existence, but the 'meaning' which the sensation conveys. Suppose the thing I look at is a grate-fire: the datum is not the mere quality light, but something luminous situated at a certain distance. And if at the same time I hold out my hands, there are not two data, the heat and the light, but one, a hot and luminous thing, a grate-fire. There are not two spaces given, one that I see, and one in which I hold out my hands, but the one space in which the grate-fire appears at a certain point. In short, the datum is not restricted to one sense, but is the datum of all the senses that are brought to bear upon the object; and it is not in its nature really a sensible thing, but something grasped by means of sense, something understood or 'meant'.

To this it may be objected that what is meant is the object itself. What need of erecting an intermediate category between the sensation which means and the object which is meant? The answer is that we sometimes mean, in this sensible way, objects that do not exist—as in the hallucinations of the insane, or in dreaming—and that a distinction has to be made between these dream objects, which are unreal, and yet present to the mind, and the sensations conveying them, which are real. It follows that, even in normal perception, the appearance presented by the use of a sensation in order to mean an object *is* not the object itself; but is only its presentment to a mind.

But an opposite objection may be made. What we have called *data* of sensation may be admitted, but it may be

denied that there are any sensations, distinct from the data. Mr. Russell, on the whole, means by 'sensations' the data; he speaks of sensations and of appearances interchangeably. But surely you can, after looking at a grate-fire, turn your attention to the mere sensation of light, a thing that is a state of yourself in the same way that a pain is; or to the mere sensation of heat, which a moment ago was felt to be the heat of the fire. You can use these feelings as media of cognition, or you can consider them in themselves, and in the latter case what you consider is not a mere detached quality of the fire, for it is now recognised to be a state of yourself. In my opinion, such states constitute the ego, or at least the particular part of it that perceives. Such a state was what enabled the ego to remember. Either sensations, distinct from the appearances, must be admitted in perception, or else no present mental image can exist in memory.

Mr. Russell no longer believes in an 'act,' by which the appearance is apprehended; this is perhaps the most important change in his views announced in this book. If by 'act' he means a diaphanous awareness contemplating the appearance, or the deed of a punctiform ego that has the awareness, the change is to be applauded; for neither of these things is really observable. But things having the same functional relations reappear on the sensationalistic theory. For, if we admit that the object was perceived by the use of the sensation as a sign, then the sensation, being a state of the self, occupies the position of ego, and its use as a sign is the act of awareness. Mr. Russell holds that sensations, considered in themselves, are not cognitive. Quite so: they are cognitive only so far as they are used as signs.

The great defect of most thinking on the subject of perception is that, at the very outset, the sensations (*e.g.*, of light and heat, in the case of the grate-fire) are substituted for the true datum, the appearance—the object of introspection for the appearance in perception. Or, say, the two are confused and treated as one, and statements are made of the fused product which really apply, now to the appearance, now to the sensation. It is as if, in the case of memory, the image were treated as of course that which is present to the mind, as the primary datum, out of which by some subsequent process a memory is evolved. Whereas in truth we do not think of the image at all, but what is before our minds is the vision of the past. It is only by turning our attention away from this vision to the present state of the self which it involves that we become aware of the image.

I will illustrate this distinction by one more example. The

perspectives which play so large a part in Mr. Russell's theory are, I think, in his conception tridimensional; and there can be no question that the *datum* of vision includes three dimensions. But, when we look into the matter, we find that depth is not given in quite the same manner that length and breadth are—it is not strictly visual, it cannot be found in the visual field as a colour can, but is a feature of the datum brought before us by means of sensations in the muscles of accommodation and convergence. Thus all that is strictly visual is a coloured field in two dimensions. Mr. Russell is not right, then, when he speaks of the perspectives as sensations; they are appearances, and the sensations are the visual and muscular feelings that enable us to see them.

Nothing therefore could be further from the truth than the view that our visual sensations are a part of the object. They are in their nature impressions on us, produced by its action on our bodies, and when used as signs they enable us to see the object, bnt they are not even then a part of it. They are only visions of it, and as unsubstantial as visions proverbially are.

It will now be intelligible how I could maintain that appearances are not existences. The only existences are, in perception, the sub-sensations constituting the object and the sensations that enable us to perceive it; in memory, the sensation remembered and the image by means of which we remember it. The world consists entirely of sensations and sub-sensations (the former being, of course, a development out of the latter) arranged in space and time.

This distinction permits us to bring order into the perplexed question of causal relations in cognition. It is felt that the object cannot be the cause of the appearance; because the appearance is the revelation of the object, and thus bears an entirely different relation to it. And yet it is undeniable that perception is called forth by the action of the object on the body. Indeed, the eye is an organ specially evolved to produce a sensation, the parts of which have the same spatial arrangement as the parts of the object. Everything becomes clear if we consider that what the object calls forth is only the sensation, and that the appearance is due to the 'intentional' use of the sensation as a sign of the object. In the same way, a past sensation leaves behind an image, the relation between the two being causal, but the vision of the past is not the image itself but its intentional use for the past sensation.

The terms I have thus far used, 'appearance' and 'meaning,' are extrinsic designations, marking the thing referred to by

the fact that it appears to some one, or that some one means or thinks of it; but, considered in itself, this thing is an 'essence'—that is, an entity having the kind of being that anything must have in order that you may think of it. An essence is thus the entire concrete nature of a thing, in abstraction from its existence. It is easy to show that, if there is to be knowledge at all, it must be by means of essences.

I assume that the world is continuous in space and in time, that its parts are separately existent, and that it has no greater unity than this continuity. Now an animal that knows is confined in his existence to a certain place and a certain time. How then is he to know things in other places and at other times, whose existence is separate from his own—things, indeed, separated from him by the entire intervening distance or lapse of time, or both? One hypothesis is that his existence goes out to them, by a mysterious act of intuition. But this is contradicted by the fact that cognition rests on causality. Another hypothesis is that their existence obligingly comes to him—as in M. Bergson's theory that the past still exists in the present, or in Mr. Russell's theory that my visual sensations are an actual part of the star I see. In reality these views contradict the nature of space and time—since the past is what no longer exists, and yet M. Bergson says that it still exists; since the star is at a great distance from me, and yet Mr. Russell says that it is a part of me.

The utmost that cognition can do is to show me an essence, which is the essence of the object, and to lead me to act as if that essence were real, at the place or time indicated by my action.

I will not elaborate this theory, for it seems to me to follow so necessarily from what has gone before that the demonstration is now complete.

To sum up, Mr. Russell has given us a theory of the external world based on the phenomenalistic principle, and has worked it out with the greatest ingenuity. With that keen logical zest which characterises him, he has shown that a complete science of physics can be constructed simply upon the basis of appearances, without the assumption of anything that appears. But this achievement has the same value as that of a psychologist who should show that a complete science of the human mind can be constructed simply upon the basis of observations of human behaviour, without the assumption of any thoughts or feelings behind that

behaviour. Such a psychologist might believe himself to be proceeding according to the only truly scientific method, and he might draw his conclusions with exemplary logical rigour; but his conception of the object of his science would be a mistaken one, because pure phenomenalism as applied to the human body is false. I would ask Mr. Russell, and those who are tempted to agree with him, to consider whether phenomenalism as applied to other objects than the human body is not also false.

IV.—VISUAL IMAGES, WORDS AND DREAMS.

By Joshua C. Gregory.

Homer compared the swift flight of Hera to the dart of thought in a travelled man who, touched by some incident to rapid recollection, swiftly inspects, in memory, scenes from his past life "and considers in his wise heart, 'would that I were here or there'".[1] Such pictures of the past, either recollected as occurrences or imaginatively surveyed without reminiscence, are familiar experiences. Visual mental images which reproduce past experiences as they were SEEN may flash upon the mind in panoramic spread, as they flashed upon Homer's travelled man, or they may be casual, and perhaps vaguely incomplete, mental pictures. Bertrand Russell probably thought of this milder visualisation as he wrote: "When you hear New York spoken of, some image probably comes into your mind, either of the place itself (if you have been there), or of some picture of it (if you have not)".[2] Homer's comparison of Hera's swiftness to the rapidity of panoramic recollection declares his familiarity with the visual mental images of memory and imagination. He would have stared at Watson's proposal to "throw out imagery altogether" from psychology and have assented to Bertrand Russell's comment: "If you try to persuade any uneducated person that she cannot call up a visual picture of a friend sitting in a chair, but can only use words describing what such an occurrence would be like, she will conclude that you are mad".[3] Homer's surprise is significant; for Watson is probably eager to jettison visual images because he is not favoured with them. It is significant because visual memory and imagination seem to vary in degree and extent from those for whom recollection is essentially a visualised panorama to those for whom it is quite devoid of visual images. "Visual image," or "mental picture," need only be used descriptively in the present connexion to describe an experience which is familiar to most, though not to all. Homer's reminiscent travelled man, Alexander believes, interviewed the actual scenes which he

[1] *Il.* 15, 82. (Trans. Lang, Leaf and Myers.)
[2] *The Analysis of Mind*, p. 80.
[3] *Loc cit.*, p. 153.

had formerly interviewed in perception, though he interviewed them under the circumstances known as remembering: images are not pictures in the mind as we naturally, and no doubt in ordinary life very conveniently, think, but things themselves interviewed under the particular circumstances known as memory, expectation or imagination.[1] Occasional individuals are never tempted by their experiences to speak of "visual images" because they never experience any, but most people, probably in this respect resembling Homer more than Watson, when they think, for example, of their summer bathing, can see, in their mind's eye, the tent from which they bathed. This reminiscent visualisation of the past, however achieved and whatever be its real nature, can be described as mental visual imagery without prejudice to the ultimate status ascribed by Alexander to the image and, in the present connexion, considered as mental imagery which mimics the visual aspects of seen things, as a reflexion in the water mimics a tree by the brink of a pool.

To those who experience them visual images are as familiar in imagination without any tinge of reminiscence as they are in recollection. Titchener mingles "visual hints" into his thinking: when he thinks of "modesty" he sees a graceful, bending female figure and when he thinks of "the progress of science" he sees the inflowing tide.[2] This is intelligible to people who mingle visual images much less freely into their thinking than he, and they, in company with others who visualise more freely even than Titchener, understand Socrates' remark to Simmias that lovers, when they recognise a lyre, "form in the mind's eye an image of the youth to whom the lyre belongs,"[3] and Hamlet's reply "In my mind's eye, Horatio".[4] There are experiences in which the mind seems to have an eye and things happen as if visual images were in this eye, as the reflected images of physical things are in the physical eye. Behaviouristic disclaimers and visualistic deprivations cannot negate the common experience in which things happen as if mental images mimic the visual aspects of seen things when these things are out of perceptive range. Nor can they successfully deny that the dreamer thinks absent things are present as if there were visual images in his mind which he mistakes for outward objects—as he might mistake a mirage in the desert for a real oasis. Such visual images, descriptively

[1] *Space, Time and Deity*, i., 25; ii., 218.
[2] *Lectures on the Experimental Psychology of the Thought Processes*, ch. i.
[3] *Phaedo* (Jowett's Trans.). [4] *Hamlet*, I., ii., 186.

described as such to avoid conflict with realistic interpretations of their real status, seem to have an interesting connexion with dreaming which the present article proposes to discuss.

Visual images can inflict damage on the mind and its thinking. Association can play scurvy tricks even on grave philosophers: "The celebrated Descartes was very much in love with a lady who squinted; he had so associated that passion with obliquity of vision, that he declared to the latest hour of his life he could never see a lady with a cast in her eyes, without experiencing the most lively emotions".[1] Descartes suffered periodically from an insistent emotion; Rasselas, during his broodings, suffered from insistent images. "One day, as he was sitting on a bank, he feigned to himself an orphan virgin robbed of her little portion by a treacherous lover, and crying after him for restitution. So strongly was the image impressed upon his mind that he started up in the maid's defence and ran forward to seize the plunderer with all the eagerness of a real pursuit."[2] Great writers freely depict their characters under siege by insistent images. When Crusoe had left his island and been ill, his "imagination worked up to such a height" that he SAW the "old Spaniard, Friday's father, and the reprobate sailors," "looked at them steadily . . . as at persons just before" him and often frightened himself with "the images" of his fancy. Don Quixote's mind became "a world of disorderly notions" and a chaos of turbulent images made him insane. Nothing is proved by making events happen in a story; but these fictions are felt to be essentially unfictitious because imagination can, and does, do violence to the mind.

Darwin cites the hallucination of a gentleman who, after looking attentively at a small statue of the Virgin, raised his head and saw the same appearance at the end of the room.[3] This milder type of siege does not menace sanity as the fiercer sieges, like those of Crusoe and Don Quixote, menace it, but the insistent image always tends to damage thought by detaining attention upon itself. Titchener wrote of the "visual hints" which mingle in his thinking, and images more properly subserve thought by unobtrusiveness than by insistence. "Any such narrative will present to me some image," writes Max Beerbohm, "and stir me to not altogether fatuous thought."[4] He perceives the essential function of

[1] Sydney Smith, *Elementary Sketches of Moral Philosophy*, p. 297.
[2] *Rasselas*, ch. iv. [3] Taine, *de L'Intelligence*, ii., ch. i.
[4] "And Even Now: Servants."

the visual image in thinking. Turbulent, crowding images stir the mind too violently and shake it rather than guide it. Images which are simply too insistent do not stir it enough —do not pass on the mind freely enough because they invite its attention to cling to themselves.

Great visualising power can confer benefit. Calculating prodigies have said that they saw their figures clearly before them as though they were written on a slate.[1] In calculating or blindfold chess-playing it is an obvious advantage to have a mental slate or chess-board. The intensification of his images secured for him by his emotion must assist the painter to represent those pictorial aspects of things which arouse that emotion within him.[2] Hogarth aimed at the nurture of visualisation: "I had one material advantage over my competitors, *viz.*, the early habit I thus acquired of retaining in my mind's eye, without coldly copying it on the spot, whatever I intended to imitate".[3] Sir Joshua Reynolds pointed the painter to the value of the mental image: "Whenever a story is related, every man forms a picture in his mind of the action and expression of the persons employed. The power of representing this mental picture on canvas is what we call invention in a painter."[4] A descent from art to stage clairvoyancy or telepathy lights upon another helpfulness in vivid visualising power. Robert Houdin chose an object at random from one of the audience, and his blindfolded son, at a conventional sign from his father, simulated second sight and described the object. The Houdins had, apparently, in their conventional signs a code of cues; but their performance depended essentially on young Houdin's training in visualisation. His father taught him to take "mental photographs" of the people in the audience and of the objects on their persons. Mental photographs plus judicious cueing thus provided an ingenious simulation of telepathy.[5] Whenever, to sum up shortly, it is an advantage to see objects without looking at them it is an advantage to have vigorous and abundant visual images.

But the "stir" referred to by Max Beerbohm contemplates an activity of thought distinct from mere picturing of objects. Titchener's imagery is relatively scattered and is largely a disintegrated remnant of complete mental pictures. This scattering and disintegration is still more marked in many minds, and visualisation is obviously reduced to a provision of

[1] Taine, *de L'Intelligence*, ii., ch. i.
[2] Holmes, *Notes on the Science of Picture-Making*, pp. 15-16.
[3] Austin Dobson, *William Hogarth*, p. 15. [4] Fourth Discourse.
[5] Bergson, *Mind-Energy* (Carr's Trans.), pp. 156-157.

cues for thinking. The visual image proper can be completely replaced by the mental picture of a word which is a mere symbol of the object with no resemblance to it. Words are heard as well as seen and also experienced as articulatory movements but visual aspects alone are under discussion here. Since seen or visualised words can serve thought and "stir" it, efficiently replacing sight or mental mimicry of sight, visual images have obviously the important function of inciting or promoting thought. If visualisation is too vigorous, if mental images insistently claim attention, thought suffers a paralysis which may be compared to the too hard stare at an object which permits no real play to thought.

The human mind has shown a marked tendency to abandon the advantage of seeing things without looking at them, conferred by the power of vigorous visualisation, for the advantage of thinking about them conferred by feebler mental images which direct the mind to thought rather than to themselves. When Roger Fry says of the Bushmen that they seem to have retained the palæolithic "unique power of visual transcription" and of the lowest savages that they show "this peculiar power of visualisation" he expresses a very common belief in the superiority of uncivilised over civilised men in visualising power.[1] W. H. Hudson speaks of a revelation "in swift flickering glimpses" of "a vanished experience or state of the primitive mind—a mind undimmed by speculation, in which the extraneous world is vividly reflected".[2] Fry deduces from relics of primitive art, and Hudson, since he compares the animal mind to the visualistic mind of primitive man, is evidently speculative; but direct observation seems to support this combination of deduction and speculation. Rivers says of an old woman giving evidence at a court on Murray Island that "she looked first in one direction and then in another with a keenness and directness which showed beyond doubt that every detail of the occurrences she was describing was being enacted before her eyes". The demeanour of uncivilised men when describing events they have seen, he adds, suggests that they read off memory pictures and their "exclusive interest in the concrete," their developed powers of observation, and their "fullness of memory of the more concrete events of their lives" intimate that "imagery is especially vivid and necessary among primitive peoples. . . ."[3] Carveth Read echoes a general anthropological estimate when he writes: "The

[1] *Vision and Design: The Art of the Bushmen.*
[2] *The Book of a Naturalist*, p. 19.
[3] *Dreams and Primitive Culture*, p. 11.

process of imagination itself, the memory and the picture-thinking of savages, seems to be more vivid, sensuous, stable, more like perception than our own normally is".[1]

The depletion of visual imagery which accompanies the evolution of the civilised mind seems also to occur in the development of the individual. Young children of five or six, according to Kimmins, have a marked VISUAL appreciation of the stories which are read to them. This visual appreciation prevents them from relishing many well-known comic stories and at seven years there is a transition from visual appreciation to an elementary play upon words.[2] This conclusion has a weight of statistical enquiry behind it though it may seem to some to be a somewhat speculative interpretation. A "correspondent" considers it difficult to discover the nature of the images in a child's mind but thinks that children use more mental pictures for thinking than adults.[3] This opinion, doubtless based on many observations of many children, is supported by the personal experience of Dr. Rivers. His mental imagery was more definite in youth, and his topographical memory of the houses he lived in is most definite for the house he left at five years old.[4] The obvious is often untrue and may deceive the observer about his own mind. Familiarity and power to image are closely connected: the most familiar scenes are, normally, most readily depicted in the mind. Memories of childhood which occur often and continuously in reminiscence can be seen vividly because they are familiar and we may mistake our present power of visualising childhood for childhood's power to visualise. But when Rivers discovers an almost complete absence of definite visual imagery in his present waking life and is aware of more definite mental imagery when he recollects his youth it becomes probable that his mental picturing has diminished with age.

Rivers' experience adds another instance to Galton's well-known conclusion that visual images desert the scientific mind. The feeble visualisation attributed by Galton to men of science after statistical enquiry, which is frequently confirmed by direct testimony, as by Rivers, or by indirect testimony, as by Watson's proposal to "throw out imagery altogether," confirms the conclusion drawn from the devisualising tendency in the evolution of civilised thought and in the development of individual minds that the human mind

[1] *The Origin of Man and of his Superstitions*, p. 88.
[2] *Child Study Soc.*, 13th October, 1921: *The Springs of Laughter.*
[3] *Times' Educ. Supp.*, 15th Jan., 1920: *What is Imagination?*
[4] *Instinct and the Unconscious*, pp. 11-12.

tends to dispense with visual images. Titcheners mingle "visual hints" into their thinking and Kekulés, pondering atomic theories on London buses, see atoms dancing in mid-air[1] to destroy the perfection of Galton's generalisations. But Bertrand Russell rightly sees "no reason to doubt his conclusion that the habit of abstract pursuits makes learned men much inferior to the average in power of visualising. . . ."[2] Thinking may become less occupied with the visual image because it becomes more preoccupied with words, as seems probable and as Bertrand Russell suggests,[3] or it may shun them because, as Lord Haldane thinks, "the metaphors that arise out of the images we call up, even in the strictest thought, are a special source of danger in scientific and philosophic investigation".[4] Images may be reserved for art because they are there essential, and dismissed from scientific description because there "the power of imagination has to be kept in restraint".[5] Depressed visualisation may be good or bad, desirable or deplorable, submitted to or struggled against; it has happened in mental evolution and it happens in us. Since it is a fact of experience its mechanism can be studied and that study is a duty for psychology.

Some experiences simultaneously remind us of the depression of visual images and hint at the method of depression. The "correspondent" who discussed children's images had a friend who claimed a recovery of visualisation by reading slowly, with frequent pauses to give the mental pictures time to emerge. The writer's experience confirms this possibility. When he thinks of a word, the word "horse" for example, or hears it, a visual image of the word itself and of the word only rises in his mind. It usually flits through consciousness, as part of a sentence, bringing significance with it, as a waiter brings a plate and leaves. If he detains the word under attention, pausing to observe it, images of horses and of fields or carts or stables or of other items connected with horses, appear in consciousness. These images are usually excluded in the customary conscious flit of thinking but are available. Restriction of imagery thus appears as a customary waiving of a right, or power, which can still be exercised on occasion.

The visual image probably developed through different stages of completeness[6] before man received it in his inheritance from the animal. Visualisation is not usually described

[1] Knowlson, *Originality*, Sect. 2, ch. ii.
[2] *The Analysis of Mind*, p. 154.
[3] *Ibid.* [4] *The Reign of Relativity*, p. 220. *Ibid.*
[6] *Vide* Washburn, *The Animal Mind.*

as an instinct but, like the instincts, it is a strongly marked pervasive tendency which has been received from the animals and incorporated into the general habit of the organism. Like the instincts also it has been placed under control, and like the instincts it has its moments of assertion and its periods of calm. Images may invade the mind as the impulse to flight may invade it when fear arises; and they may, apparently, be as completely, or nearly as completely, banished from thought as flight or other impulses may be banished from action. If images or mental pictures of words be distinguished from other visual images and not included, as seems to be a very usual custom, in the term "visual image," the tendency to visualise is often very completely inhibited. Visualisation can be regarded as a tendency to mental response by visual images which undergoes, progressively with the evolution of civilisation and in different degrees among the minds of one generation, a process of inhibition. The mind has a tendency to have visual images when it thinks, and an inhibiting mechanism to free thought from them. The inhibiting mechanism might operate in one of two ways. The imaging power or tendency might be assimilated into the thinking process: the word "fairy," for example, instead of stirring pictures of these dainty beings in consciousness might stir in it a general sense of significance—the mind realising the MEANING of the word without illustrating it by visual images. Such assimilation might be compared with nutrition by food: the imaging process might lose its identity in the total process of thought as the food loses its identity in the metabolic process.

Such inhibition, if the term "inhibition" is admitted to apply to such assimilation, is a virtual destruction of the visualising tendency since this is transformed into something else. A simple loss of visualising power, which would make "inhibition" unnecessary, would have exactly the same apparent effect of clearing images out of consciousness. It is, however, conceivable that "inhibition" might fail at times to assimilate the visualising tendency, so that images get into consciousness. The virtual destruction of the visualising process by inhibition is thus distinct from its actual destruction, since the original tendency to imagery may, from time to time, assert itself. If some people have practically no visual images[1] their visualising tendencies may either be destroyed or be a lingering remnant which has escaped destruction. The showering of images upon the mind by

[1] James, *Principles of Psychology: Imagination.*

shock favours inhibition of visualisation more than its destruction. De Quincey was told by a near relative who fell into a river and was just saved that "she saw in a moment her whole life, clothed in its forgotten incidents, arrayed before her as in a mirror".[1] Some Gold Coast natives who had been almost drowned told Cardinall that they had seen the dwelling-places of water-spirits.[2] They had doubtless had visions appropriate to their minds, as De Quincey's relative had visions appropriate to her mind, which had been showered upon them by shock. If, as seems probable, an apparently completely devisualised mind would visualise under shock, devisualisation probably occurs through inhibition, more or less stringently enforced.

Since the inhibition seems often and in many respects to be but lightly enforced (images appearing, for example, when the reader pauses over his words) visualisation may be normally inhibited merely by keeping images out of consciousness. This is the second possible operation of the inhibiting mechanism and, in a general way, it corresponds to the "suppression" of instincts suggested by Rivers, as assimilatory inhibition corresponds to his notion of "fusion".[3] Devisualisation may proceed inhibitorily by a tendency to make visual images inaccessible to consciousness. The same process may also be expressed as an inhibition of the mental tendency to react in thinking by producing images. To secure clearness of exposition the images may be conceived to sojourn in the unconscious ready to enter consciousness and devisualisation to be an inhibition of their entry. There are, on this conception, images in the unconscious mind, such as mental pictures of horses and scenes connected with them, ready to enter consciousness when, for instance, the word "horse" is seen or heard, and a process of inhibition to prevent their access. This inhibition has increased in stringency during the evolution of the human mind, it becomes more stringent during individual development, usually very much more stringent if the individual inclines to scientific or abstract pursuits, and varies in stringency among the members of any group—artists, for example, inclining to release their images as philosophers incline to imprison them.

Rivers remarks that painful experience is specially liable to "suppression".[4] By such "suppression" any experience

[1] *Confessions of an English Opium-Eater*, Pt. 3.
[2] *The Natives of the Northern Territory of the Gold Coast*, p. 34.
[3] *Instinct and the Unconscious*, p. 33.
[4] *Loc. cit.*, p. 35.

is rendered inaccessible to consciousness, but special conditions, such as dream or hypnotism, may restore it from the unconscious where it has remained active. An officer who often experienced fear when he was enclosed had this claustrophobia greatly intensified at the fighting front. A painful experience in an enclosed space had been driven down into his unconscious to trouble his conscious life when his outward surroundings resembled those of the suppressed experience. In a semi-waking state following a dream he recalled the incident which had remained in suppression to disturb his life. At the age of four he had been in the blind end of a passage and a dog had followed him in from the open end. His fear of the animal and his inability to escape had sunk into his mind beyond the range of recollection and the suppressed experience remained as a perpetual suggestion of menace whenever he entered an enclosed space.[1] Devisualisation probably is a quieter form of suppression or inhibition, which restricts the access of images to consciousness. The need for this restriction appears in some instances where vigorous visualisation would seem to be an advantage. Taine discovered purely visual memories in chess-players; Binet found that his blindfolded chess-players were disturbed by mental visions of their pieces. Binet's subjects reconstructed the game at every move and each one proceeded from an "idea of the whole" which enabled him, if he so desired, "to visualise the elements".[2] If visualisation can disturb a blindfolded chess-player who would apparently benefit by a special power to see without looking, its historical and individual inhibition, to favour conception by restricting mental seeing, appears clearly as an important factor in mental evolution. Thought requires its visual images under discipline—to be prevented from occupying consciousness too forcibly or freely and to be available when wanted. Perfect imposition of perfectly regulated inhibition may be seldom or never secured. Any particular mind may inhibit too severely or too leniently. The varying visualising power, so obvious in the different mental methods of individuals, represents different operations of the inhibitory tendency which provides a necessary mental discipline for images. These different operations depend, doubtless, on the original mental equipment of the individual and also on his surroundings and life. They are usually spontaneous and unwitting, though educationalists contemplate the rational superintend-

[1] *Instinct and the Unconscious*, pp. 10 ff.
[2] Bergson, *Mind-Energy* (Carr's Trans.), pp. 161-162.

ence of the visualising faculty. There are, doubtless, all degrees of visualistic inhibition—it is almost absent in a mind like Blake's and almost complete in a mind like Watson's. It passes also, doubtless, in different degrees in different minds, into what Rivers calls "fusion".[1] The significance of any idea, such as the idea of a horse, may centre on the word "horse" and be supported by visual images which lurk underneath it without entering consciousness. These lurking images may, escaping inhibition or relieved from it, become conscious and visualistically enforce the meaning or significance of the idea which centred on the word. These entrant images, or any one of them, may substitute an imaged focus for the original verbal focus. This is inhibition in its suppressive and releasing aspects. Visual experiences of matters connected with horses may cease to be recoverable as images and still contribute to significance by incorporation in the mental process stirred by the word. This is Rivers' "fusion". There may be, also, a complete deletion of the effects of some experiences upon the mind, corresponding to the complete obliviscence suffered by memory. The mind may retain no traces of some experiences, though it may be that no experience does not leave some permanent result. There may be a slight deflexion, though it may be virtually irrelevant, to mark the former touch of any experience, however fleeting and imperceptible it may appear to be.

It has been implied that words are the inhibiting agents in devisualisation and they seem to have this rôle. Since they are themselves visual images which appear in thinking (only the visual aspect of imaging is under discussion here) they intimate a retention of visualisation which has dispensed with visual mimicry. It is usual to distinguish between visual images and words, even when the latter are visualised, because words are visual signs or hints that have no resemblance to objects and contain no element of imitation. These visual signs inhibit mimicing visualisation and "Almost all highly intellectual activity is a matter of words, to the nearly total exclusion of anything else". This substitution of the word for the representative visual image occurs, adds Bertrand Russell, because words are more easily produced, because images may contain irrelevant detail, and because abstract matters are not easily rendered by imagery. Destruction of imagery would follow these advantages by throwing the mind entirely on the resource of words. It is, however

[1] *Instinct and the Unconscious*, p. 32.

a necessary safeguard in thinking, Russell adds, "to be able, once in a way, to discard words for a moment and contemplate facts more directly through images".[1] This process of contemplating facts more directly through images and, it may be added, of using them as vehicles of artistic insight, would, if lost, deplete the mind and might, in the final result, even destroy its capacity for abstract thought. A regulated inhibition of visual images, which prevents their intrusion and allows them access when desirable, provides thought with a mental method. This inhibition is normal to the human mind, though the perfection of its regulation varies in degree and may never reach the ideal.

Verbal regulatory inhibition of visual imagery is a compromise between thinking in words and thinking in pictures. It is, normally, a fairly effective co-operative combination, though either partner, verbalising or picturing, may secure mastership in the co-partnery. The verbal inhibition of visual imagery is very discernible in the literalisation or stripping of metaphorical words. Words which begin their public career as metaphors lose their metaphorical significance and signify their meaning with literal directness. When we say of any person that he is "in a hole" or in "a tight place" we think of him as "in difficulties" without having mental pictures of the struggles in an actual hole or of the squeezings between narrow walls which originally conferred a metaphorical status upon the two phrases. The metaphorical images are often there, pinned under the phrase, so to speak, and ready for conscious adoption. Now the dream discards the inhibiting words and summons the images. Dreams are eminently visualising achievements and Freud notes that they transform verbal connexions into connexions between images. Picture writing has serious difficulties with the logical relations expressed by "if" or other similar words and the picture writing of the dream appears more chaotic than waking thought because it is deprived of verbal aids to conceiving these connexions. Causation may occur in the dream as SUCCESSION: this, it may be noted, gains dramatically but loses conceptually—the word "cause" MEANS more than a mere succession, however graphic it may be. Freud adds that words play a part in the formation of dreams and he speaks of them as junction points for many conceptions and as having a predestined ambiguity.[2] The restoration of their original picturesque meaning to words

[1] *The Analysis of Mind*, p. 212.
[2] *The Interpretation of Dreams* (Brill's Trans.), ch. vi.

which are now abstract is specially significant in relation to verbal inhibition of images. Freud chooses as instances of demetaphorised phrases "in a hole" and "in a tight place," and Nicoll[1] records a dream that releases the images from their inhibitory under-pinning by them. A young man was unwilling to accept an offered post and faced with the alternatives of unacceptable work or unemployment. In his waking thought he was in "a tight place". He dreamed he was in a cave which connected with the sea by a long narrow passage. He struggled through it and found himself battling in the surf. The dream ended on further incidents but the original imprisonment and struggle through the sea-washed passage corresponds to the release from inhibition by the verbal phrase of images which have an obvious connexion with the original metaphor in the words "in a tight place". Nicoll, in his interpretation of the dream, hankers after birth symbolism and compares the cave, with its passage, to the womb. Imagery released from verbal inhibition and drawn directly from familiar experience is a simpler and more natural explanation.

The dream appears to reveal the inhibitory sojourn of visual images beneath the inhibiting verbal images. Expressed in terms of mental process or reaction, the tendency to visualise words during thinking shuts down the tendency to visualise images. When thinking proceeds without words the shut-down tendency becomes assertive. This assertiveness runs riot in the dream because verbal thought has almost disappeared. The disappearance of visual word-images is a striking feature of the world of dreams. Intense visualisation sometimes contains visualised words: "I write when commanded by the spirits," wrote Blake, "and the moment I have written, I see the words fly about in all directions".[2] Seers, however, more often hear words than see them and dreamers, who are embryo Blakes, seldom see words in their dreams. Dreamers have seen some casual and curious combinations of letters but, though printed or written words pervade modern civilisation and are constantly before men's eyes, the dream-world is largely a wordless world and visual images are there supreme.

Many dreams appear to transcribe thoughts directly into pictures by discarding the verbal expression and releasing the inhibited images. A gentleman arranged a hen-run, during the tight time of the war, by surrounding his garden with

[1] *Dream Psychology*, ch. v.
[2] *Poems of William Blake*, Edit. Yeats: Introd.

fish-netting. He remarked to his mother: "I hope no cat will break through the nets". He happened to read, during the next afternoon, of the were-wolf legend and was reminded, by a natural association, of the cognate superstition that witches can transform themselves into cats. That night he dreamed of his garden: he stood where a torn piece of netting waved in the wind. Then he was conscious of commotion, of a creature passing behind him, of a chase, of a capture and of holding a woman in his arms. On looking into her face he saw it wrinkled, withered and lined, as though she had lived for aeons. He had thought with the images released from under his former words. The witch of his dream, emphatically imaged by her wrinkled face, was the "cat" of his thought—an obvious metamorphosis through association.

If these images had entered his mind as he spoke to his mother, they would have been under some measure of inhibitory restraint and he would not have visualised a fear into an actual occurrence. This displacement of meaning occurred in the dream, after the usual manner of dreaming. Images under the inhibitory discipline of words signified a fear, the same images freed from restraint signified an actual, and illusory, event. Dream-metamorphoses of thoughts into illusory events intimate both the verbal inhibition of images and some advantages of such inhibiting. Thought tends to resolve into a survey of images if visualisation is unrestrained. This survey runs in the dream to its completion in hallucination. Schleiermacher regarded dreaming as a replacement of thoughts by hallucinations:[1] this seems to be true and to be true because the mind turns from words to images. Thinking is achieved through the subjection of images, through words which inhibit them and control their appearances in consciousness. This disciplined visualisation is appreciated through its reversions to indiscipline. When minds are assaulted by their images they reel, as Blake's mind often reeled. When they are periodically assaulted in dreams they plunge into illusion. These are "flagrant instances" of the intractableness of the visual image. Words subdue this intractableness and conform it to the logic of thought. Extreme devisualisation may err by excess of discipline as extreme visualisation may err by deficit. Those little dramas that we call dreams are periodical reminders of the regulatory inhibition exercised over visual images by words and of its necessity for thought.

[1] Freud, *The Interpretation of Dreams* (Brill's Trans.), ch. i.

V.—DISCUSSIONS.

A WORD ABOUT "COHERENCE".

VERY probably students of philosophy are tired of discussions about "Coherence". The vitality of the opposition to it certainly makes one think. It seems as if the simple doctrine "Truth is when the fact exists as the proposition says" was so overwhelmingly plain and convincing that very great authorities have finally settled down to acquiescence in it. It *is*, of course, plausible; especially if you take the distinction that the above is the description of truth, though the test, or criterion, or procedure towards the attainment, of truth may be something further.

An elementary mode of statement—nothing profound or ambitious—has occurred to me, which I should like to be allowed to suggest. It is merely this; that the advocates of "correspondence" are speaking of truth in the everyday sense, while we who demand "coherence" do not think you ought to speak seriously or theoretically of truth unless you have *proof*.

"I have truth when I make a proposition to which the facts correspond" or "which corresponds to the facts". Of course, this is universally accepted in daily intercourse. If I am told there is a train at nine A.M., and there really is one, then I am told the truth. The truth is the meaning of certain words. The fact is a touchstone, a test, outside and of a different kind.

So far so good. But we should say, I suppose, that "the fact" here is much too simply taken for anything serious to hang on it. It is all right as long as there is no reason for doubt; but the moment there is room for doubt, and you ask how you are to know whether the proposition is true or not, you must take the step of asking for proof.

Now here you meet with something remarkable. Of what is the proof to be? *Prima facie, of the proposition;* you allege the existing fact, and then, on the everyday assumption, the truth of the proposition is proved.

But this omits a very familiar procedure. It is surely natural and not uncommon to ask for proof of the *fact*. If the fact, which we used as a test, is not proved, then the test fails and the truth of the proposition is not established. Now what sort of thing is the proof of a fact? Two points are clear, surely; it is a procedure by coherence; and it is *the same procedure as* the proof of the truth of the proposition which affirms it.

The first point needs no argument. The procedure of science or of a law court settles the question at once. The test is, "to save the appearances"—to get the result which gives the highest degree of agreement in all the relevant experiences.

And the second point shows that the establishment of the fact and the establishment of the truth which it is supposed to test are one and the same thing. "Cæsar was murdered." This is true, if his murder really took place. Yes, but did his murder really take place? The answer to this question rests of course on an enormous construction of critical theory and harmonised facts—the proof. If the fact is not proved, the truth of the proposition tested by it is not established, and you cannot say the proposition is true.

You may take it ideally—hypothetically; and I think this is sometimes done. You may say "If the fact is real, the proposition is true"; or "that is what I mean by the proposition being true, *viz.*, that the fact is real". Speaking from memory, I think this is Dr. McTaggart's line.

The only objection that I see to this, is that it puts you in the position of habitually speaking about propositions as true when you do not in the least know whether they are true or not. And this seems to me a very dangerous habit, though necessary up to a certain point.

I suppose it is the legitimacy of this mode of speech that Croce defends when he says that we are entitled to affirm about great historical events that "humanity remembers them," apart, as I understand him, from any critical proof. (Suppose you say that "Humanity remembers" the Resurrection. I should admit there is a sense in which you may say this; but not a strict sense.) All I assert is, that we are in the wrong, if in saying that truth depends on fact, we forget that fact depends on proof, and proof, we may add, constantly and in a large measure depends on truth. The apparent difference of kind disappears on analysis. I do not want to disregard the convenience of the innumerable degrees of certainty which we practically accept in daily life. Only a philosopher of Laputa would do so. But I do say that for logical theory and in principle you only have truth where your fact is proved; that is, where your proposition is exhibited as immanent in a system where all relevant experience is included.

This is as far, I think, as the current "correspondence" theory takes you. A further point is raised if you ask whether logical laws have to be assumed apart from coherence; but that I spoke of in the April MIND, and I do not think the current defence of "correspondence" raises it.

BERNARD BOSANQUET.

RELATIVITY, SCIENTIFIC AND PHILOSOPHICAL.

I SHOULD like to disclaim altogether the "Gallio attitude" which Dr. Carr imputes to critics of his philosophical interpretation of the Theory of Relativity.[1] Far from expressing "indifference to the new discovery" I fully admitted both its outstanding scientific value and its philosophic importance.[2] But I still think Dr. Carr misreads its significance as regards the philosophical principle of relativity.

His argument falls into two distinct stages. The first is based on admitted results of the Theory; but the second interprets these results in a manner which the Theory itself in no degree justifies, although his conclusions may, of course, on other grounds, be true; but with any other grounds than the Theory itself we are not at present concerned. I believe I anticipated this second stage in saying that philosophic relativity is concerned "with the relation between mind and its content, or between mind and reality, and applies universally";[3] and I shall try to show very briefly the untenability of his position in more detail. We begin then with the truth that "there is no absolute event in an independent system"[4] (p. 176). This is the essence of the Theory, and the first stage of Dr. Carr's argument. The next question is as to the nature of this independence and system; and it is here that we find what I take to be an altogether illegitimate expansion of the Theory's implications. With the character of the independence which the Theory repudiates I have already dealt. "The independence that is denied subsists not between the mind and observations, but between our scales and units and the observed phenomena" (p. 46). Thus the independent system for Einstein is physical; or if we employ a category purely philosophic, it is ontological. But at this point Dr. Carr crosses the Rubicon, and the second part of his argument begins. For he straightway transforms this ontological into an epistemological category:—"the absolute is not in the *object of knowledge* taken in abstraction, not in the external world, it is *in the observer* or subject of knowledge and a function of his activity."[5] When we take the

[1] MIND, April, 1922, p. 169. For "Theory" *cf.*, *ante*, p. 42, note 3.
[2] *Ante*, p. 52; "epoch-making," p. 47. [3] P. 44.
[4] ". . . and no sameness of events occurring to different observers." This seems to ignore the identity of observations within any one reference system. *Cf.*, *ante*, p. 42.
[5] P. 174. Italics mine.

two statements literally, the fallacy of this transition becomes obvious. The relativist's system of reference (which is undoubtedly part of the external world) is transformed into the "object of *knowledge*" and transferred from the external world to the observer. Or take an alternative statement. "The phenomena of nature must be relative to a standard"—this standard being for Einstein once more the observer's system of reference. But again the same transformation occurs, and Dr. Carr converts this into "a standard *furnished by the observer*".[1] The two positions are, obviously, far from being identical. We may hold the first without accepting the second; and if we do advance to the second it must be on grounds altogether independent of the Theory. The question becomes—Is the relativist's reference system a standard furnished by the observer? I venture to think that this epistemological problem is as foreign to many physicists as relativity mathematics is to the majority of philosophers. It is indeed a problem which can never be solved on any purely scientific basis such as underlies the Theory. The only science which can be appealed to is the science of knowledge. The issue, that is, is epistemological; it cannot therefore be affected by the scientific Theory in any way.[2] It is well known again that Dr. Whitehead emphasises the total exclusion of mind from the realm of Nature for all purposes of science. Thus his position is diametrically opposed to Dr. Carr's; but he, at least, cannot be charged with "caring for none of these things".

Dr. Carr, in short, has unwarrantably altered the venue of the whole enquiry. The introduction of the category of knowledge is justified by no earlier consideration whatever; it is gratuitous and irrelevant to the Theory as such. We must not be misled by the fact that the objects—the reference system—with which the Theory is concerned are "objects of knowledge". That is a truism; for if they were not there could be no Theory. But this is far from proving the truth of philosophical relativity. Of course *if* Dr. Carr's philosophic position had already been indubitably established then the Theory would have provided for it invaluable confirmation. But to confirm an established principle is one thing; indirectly to prove by implication a principle which itself is in question is quite another; and it is precisely this conversion of the ontological system into an epistemological basis which is disputed. The absolute, we have seen, is "in the observer". But further, it is "the 'I think' which in affirming its activity posits existence. The 'I think' does not presuppose existence; it is not generated but generator" (p. 174). This standpoint is analogous to, if not

[1] P. 175. My italics. *Cf.*, "The ground of measure-relations must be physical in nature". Schlick, *Space and Time*, p. 59.

[2] There is a minor but still important point. Dr. Carr argues that "Our 'I think' is attached to a system of reference from (which) we derive our axes" (p. 175). In the Theory, however, the axes themselves constitute part of the system—they are not derived from it.

identical with, that of Italian neo-idealism, where we have "mind as the transcendental activity productive of the objective world of experience".[1] I have already accepted "mind as one, if not the sole, clue to the nature of Reality".[2] But I take this to mean no more than that finite mind is (*a*) directly revelatory of reality, and therefore (*b*) shares a common nature with reality; there is between them no absolute difference nor fundamental opposition. Their common nature constitutes, of course, a problem. I take it to be wholeness—totality—the Hegelian self-transcending ideality of the finite. If this is what Dr. Carr means by philosophic relativity, then our only difference is that he regards it as finally proved by the Theory, whereas I fail to see any direct connexion between them. Subject to later qualification I will admit, with Lord Haldane, that knowledge is "foundational of reality". But this does not mean that "the 'I think' is not generated but generator". What are the implications of Dr. Carr's contention? Sense-experience alone becomes "the immediate object of consciousness, and from it therefore the physical reality of science is constituted". Now what exactly is covered and implied by "sense-experience" is still matter of dispute; here it is sufficient to point out that Dr. Carr equates all "sense-experience"—in principle—to pain—that is to what all schools alike accept as a permanently localised and subjective affection of the individual percipient. In this equivalence there is of course an element of truth; but it is not yet finally established as an ultimate principle, and it is certainly not directly implied by Einstein's Theory.[3] Still further, "the principle yields in the first place a mathematics (which) can offer material to physics. Physics depends on mathematics, not *vice versâ*, and mathematics becomes an *empirical* instead of a *transcendental* science."[4] Much depends here on the precise meaning of "transcendental" and "empirical"; but in any case the statement is correct only within limitations. Relativity mathematics certainly applies to some important branches of physics, but it only expands and corrects earlier mathematics; the general relation between the two sciences still remains unaltered, and the pathway from "sense-experience" to mathematics still traverses physics in the first place; although at later—but more abstract—stages it is almost impossible to distinguish between them. To maintain the contrary is to adopt Prof. Eddington's fallacious argument based on the "embryo mind";[5] nor can we disregard Dr. Campbell's contention that "integration leads to physically significant results only because it

[1] Gentile, *Theory of Mind as Pure Act*, p. 43. [2] MIND, *ante*, p. 46.

[3] If the Theory is accepted in the light of the unconscious subjectivism which has so long dominated science then such a position is presupposed; but this again is not proof. Against this subjectivism there has fortunately set in a strong reaction, of which Dr. Whitehead's *Concept of Nature* is perhaps the best known—but not the only—expression.

[4] P. 173. My italics. *Cf.*, Appendix (2).

[5] MIND, April, 1920, p. 154. *The Journal of Philosophy*, vol. xvii., p. 610.

corresponds step by step to some physical process"; and Lord Haldane's opinion that "Einstein seems to think that we perceive objects, not events. The continuum is got at indirectly by inference, and is not the actual basis of nature as directly known."[1] Physics, that is, is still prior to mathematics.

But the truth that knowledge is foundational of reality itself demands substantial qualification. For finite knowledge declares that to itself reality is foundational. Whether we can say—No finite knowledge, no reality—seems to me questionable; but certainly we must say—No reality, no finite knowledge. For it is with finite knowledge that we are here concerned, and to such knowledge reality is foundational; it is "generator," and knowledge "generated". Hence their common nature; hence it is too that infinite knowledge is one with reality. But throughout Dr. Carr's discussion there runs that unjustifiable identification of physical phenomena with experience, which begs the whole question at issue. We find *e.g.* (p. 171) that "the principle interprets the *behaviour*" of the filings; it deals *i.e.*, with "interpretation of the *phenomena*"; but on page 177 the position is that "the principle asks us . . . to interpret" *experience;* again the initial ontological issues become illogically presented as epistemological; "sense-experience presents itself in the form of event" (p. 174).[2]

One minor point seems to be important. "The principle *interprets* the behaviour of . . . phenomena." But it seems to me that the Theory offers itself primarily as a description, and not as an interpretation in any philosophic sense of explanation.[3] The ideal of many relativists appears to be to dispense with explanation altogether and to content themselves with descriptions—needless to say of the greatest value. They regard it as their province to describe phenomena in exact geometrical or mathematical terms, but not to explain them; just as a bank passbook describes transactions which it does not explain;[4] and both the clerk and the relativist lighten their tasks appreciably by this procedure. But

[1] *Physics, The Elements*, p. 523. *The Reign of Relativity*, p. 110 (condensed). Also *Einstein and the Universe*, p. 5; "mathematical symbolism always embodies an abstraction". "Starting from familiar conceptions . . . we are finally left with Space and Time in the simple form (of) Einstein's physics. . . . Reflections in the realm of metrical geometry acquire a meaning only when its relationship to physics is borne in mind." Schlick, *op. cit.*, pp. 5, 59.

[2] *Cf.*, Dr. Bosanquet. "The moral of relativity is not the permeation of the universe by mind or minds"; (*Meeting of Extremes*, p. 16); and Dr. Whitehead's realistic theory of events in his *Concept of Nature*.

[3] *Cf.*, p. 171. "According to the theory, this is the scientific explanation."

[4] *Cf.*, MIND, *ante*, p. 47, note 1; also pp. 200, 204 (Dr. Dorothy Wrinch): "all use Space as a description. It is the properties and not the intrinsic nature of space which is the subject of investigation." My statement is intended as one of general principle, subject to exceptions on minor aspects of detail; just as mere dates in the passbook may explain a great deal. *Cf.*, further Appendix (1).

philosophy must seek explanations; further, description, as such, can never take the place of explanation, though it may provide material for its correction. The Principle of Equivalence *e.g.*, merely states that gravitational phenomena may be equally well described or expressed in terms of acceleration.[1] But to remain satisfied with the suggestion that accelerated motion is a necessary consequence of the space-time continuum surely betrays a degeneration of philosophic fibre.

There is another possible source of confusion. Dr. Carr refers to "scientific" and "physical reality" (pp. 173, 174, 176). I presume no ultimate distinction is implied between these and some other mode of reality—though there is of course a subordinate distinction of aspect or standpoint. If on the other hand these terms refer to scientific concepts, then these of course—like all concepts—arise from a basis of sense-experience; the "I think" is their generator. But while we all employ the statements that "time—matter—space—are concepts" these are, taken literally, false. Space, *etc.*, are for philosophy reals, not concepts; although they are reals of which we form concepts; and concepts themselves are also real.

Finally as to a few obscurities of expression. "Simultaneity and direction have been falsified by experiment" (p. 176). The Theory, however, so far as experiment is involved, depends on coincidence, and therefore on simultaneity. "The absolute observation is, whether or not the coincidence exists, not when or where or under what circumstances it exists."[2] Again, is the *reality* of the universe finite—"finite yet unbounded" (p. 177)—or its *extent*?[3] and in what sense can the universe be finite because "every straight line is a geodesic which *at infinity* must return on itself"?

I conclude then that if any form of subjective idealism has been *already established*, or is *presupposed*, then the Theory amply confirms that philosophy. On the other hand, the Theory itself cannot substantiate it; it is indeed equally consonant with either objective idealism, realism, or even materialism; it is, for philosophy, a benevolent neutral.

Appendix.

Since the above was written, two lectures by Einstein have been published.[4] Although these deal with ether and geometry, and so might easily lend themselves to a subjectivist interpretation, they seem to me strongly to confirm the "neutrality" of the Theory

[1] "It is impossible to distinguish between a universal force and a curvature of the manifold." Prof. Lindemann in Schlick, *op. cit.*, p. iv.

[2] Prof. Eddington, *Space Time and Gravitation*, p. 87; *cf.*, *ibid.*—"So far as knowledge is knowledge of intersections of world lines, it is absolute knowledge *independent of the observer*". (My italics.) *Cf.*, Schlick, *op. cit.*, pp. 50-53.

[3] *Cf.*, Mind, *ante*, p. 45, note 3. Schlick, *ibid.*, p. 73.

[4] *Sidelights on Relativity.*

if there is any definite tendency at all, it is realistic. Here I can only, however, append a few relevant quotations.

(1) It is extremely interesting to notice that as the Theory develops it turns more and more from description to explanation—even to causal explanation. As regards matter and the continuum, *e.g.*, the latter now ceases to be in itself ultimate. Its "metrical qualities . . . are partly conditioned by the *matter outside* of the territory under consideration . . . ether determines the metrical relations, the configurative possibilities of solid bodies as well as the gravitational fields".[1] Except that ether and matter have new attributes, this is little removed from the older physics.

(2) As to the nature of mathematics, Einstein's position is quite definite; for him mathematics is "transcendental". "As far as the laws of mathematics refer to reality, they are not certain; and as far as they are certain, they do not refer to reality. The *logical-formal alone* forms the subject-matter of mathematics, which is *not concerned with the intuitive* or other content. This view purges mathematics of all extraneous elements. That which gives "point," etc., substance is not relevant to mathematics. We distinguish "practical geometry" from "purely axiomatic geometry". All linear measurement in physics is "practical geometry"".[2] We have here obviously an almost absolute dualism which underlies Einstein's entire treatment of this point. Scientifically it is of course quite justifiable. But it is philosophically unsound, and could be removed, I think, by a stricter logical analysis; but with this the scientist, as such, is not concerned.

(3) This is also true, it seems to me, of a still more important consequence of the Theory—the finitude of the universe. This finitude is spatial—"spatially unbounded and of finite magnitude".[3] But this "spatial" finitude is to some degree at least fallacious; it is spatial only within limitations and under definite conditions; it is perhaps best described as quasi-spatial. For the term "space" has changed fundamentally in meaning—a change perfectly legitimate once it is recognised and adhered to. "Space is endowed with physical qualities; in this sense there exists an ether. Space without ether is unthinkable" (p. 23). All this restricts the problem to the ontological and physical realm. The physical universe of matter—ether—energy—is finite. Hence the fallacy of expressing this in spatial terms. For it is obvious from Einstein's treatment that the finitude is, strictly, a *numerical* finitude, not necessarily a purely spatial finitude in the older sense of extensional. The problem of extensional infinity still remains to be faced; it may be academic, but it is not illogical. Thus there is once more necessary a precise definition of all our terms; until this is achieved confusion is inevitable. It is of course a logical problem; but it must be treated on an ontological basis.

[1] Pp. 18, 20. On p. 20 we have "the *causes* which condition its state". (Italics throughout mine.)

[2] Pp. 28-32.

[3] P. 21. *Cf.*, also p. 41.

J. E. TURNER.

VI.—CRITICAL NOTICE.

A Faith that Enquires: The Gifford Lectures delivered in the University of Glasgow in the years 1920 and 1921. By Sir Henry Jones. London: Macmillan & Co., 1922. Pp. x, 361.

Those who enjoyed the privilege of a personal acquaintance with Sir Henry Jones have always been apt to think that his published writings, vigorous and inspiring as they are, did not adequately represent his power as a constructive thinker. His predecessor in Glasgow, who was also his master, was generally regarded as the greatest teacher of philosophy in his time in Great Britain; and he was also recognised as being among the foremost of philosophical writers. Many of the pupils of Sir Henry Jones were inclined to believe that he was not less great as a teacher than Edward Caird himself; but as a writer he could hardly be placed on a similar level. The lectures that have now been published, taken in conjunction with the important works on Browning and on Lotze, may be held to place him as a philosophical writer on a level at least approximately equal to that which belonged to him as a teacher. In both respects, no doubt, his dependence upon Caird is very obvious, both in the general lines of his thought and in the manner of his exposition. But there are characteristic differences. Caird generally wrote as an expositor and as an extremely sympathetic critic; and, though he led up with elaborate care to definite conclusions which he emphasised with strong conviction, yet it was always his tendency to regard the results as being of less importance than the process by which they were arrived at, and as having hardly any value apart from that process. He used to say that it was much more essential that philosophy should be thoroughly reasoned than that it should lead to results that are either true or valuable. Jones would perhaps have agreed with this; but he had by nature more of the spirit of a prophet, and this makes itself felt in his writings. He was always eager to reach a definite conclusion and to persuade others to accept it. The title of his Gifford Lectures has been well chosen to express his attitude of mind. His philosophy was for him a *faith*—not in the sense in which faith is opposed to knowledge or reason, but in the sense in which it implies firm conviction without complete proof. He claimed what William James characterised as the 'right to believe,' but only after careful enquiry. He describes his conclusion as a hypothesis which cannot be fully verified, but

which can be seen to serve as an interpretation of the facts so far as known. 'It is not easy,' he says (p. 96), 'to exaggerate the significance of hypothesis'; though it has to be admitted that 'no hypothesis is completely worked out' (p. 100).

The general nature of the hypothesis that he seeks to put forward and defend is an idealistic theory of the universe—differing, however, both from such an idealism as that of Mr. Bradley and Mr. Bosanquet and from that of Mr. James Ward, and of course still more markedly from that of William James and those who are described as pragmatists or humanists. His view is essentially the Hegelian theory as interpreted by Edward Caird, but stated somewhat more positively and defended more emphatically. The fundamental assumption may be briefly stated (p. 106) as 'the hypothesis of a God whose wisdom and power and goodness are perfect'. Of the theories that he rejects he evidently stands nearest to the absolutism of Mr. Bradley and Mr. Bosanquet, and a large part of the book is devoted to the criticism of their doctrines. 'It is only,' he says (p. 130), 'in such doctrines as those of Mr. Bradley and Mr. Bosanquet that a genuine recognition of the apparently inconsistent rights of the finite and the infinite, and, as a consequence, of morality and religion, makes itself felt.' But he proceeds to indicate that the treatment of the apparent inconsistency by these two writers appears to him to be in the end unsatisfactory. The discussion of this subject seems to be the most valuable part of the book; and, though it cannot be adequately dealt with in such a review as this, an attempt must be made to set forth the main line of argument. The main points of difference are these: (1) He conceives the Absolute as being personal, not 'super-personal,' and consequently does not recognise any distinction between the Absolute and God. (2) He rejects the view that the human consciousness is properly to be characterised as a 'finite centre'. (3) As a consequence of these differences, he does not admit so sharp an antithesis between morality and religion as is made by these writers. (4) Hence also he is led to affirm the doctrine of human immortality, which they are both inclined to reject. Some comments on these four points of difference may be useful.

With regard to the first point, he quotes (p. 315) Mr. Bradley's statement that 'The highest Reality . . . must be super-personal,' and says that this is 'a word to which I can attach no definite meaning at all'. No doubt it does not at once *tell* what it means; but I should have supposed that it could be interpreted as meaning one or other of two things, *either* a Being who is personal without the limitations that are commonly understood as being implied in the existence of a person, *or* a unity including persons together with their relations to one another (as in a human society or in the Absolute as conceived by Mr. McTaggart). But Jones's contention, if I understand him rightly, is that *all* persons transcend the limitations that are implied in their separate individualities,

and that *all* persons are members of a community and include within themselves certain relations to others; and hence that all persons might be said to be super-personal. The distinction between one person and another is thus essentially only the difference of more or less completeness; so, instead of saying that the Absolute is super-personal, we should say rather that the Absolute is the perfect or complete person. Hence also *every* person, so far as he approaches completeness, may be said to become identical with the Absolute. And thus we are led to the second point.

If the view thus taken is correct, it is clear that there is no sharp distinction between the human and the divine personalities; and that it is consequently misleading to lay special emphasis upon the finitude of the human consciousness. Jones expresses himself with great boldness and force about this. 'There is not any limit,' he says in one place (p. 156), 'to the identification of the worshipper and his God in a true religion.' Again (p. 77) 'the infinite perfection of limitless love actually lives in man. Every good man is the Child of God, and his life in its strivings for goodness is the divine perfection operating within him. God incarnates himself anew in all his children. . . . Here is complete identification, a losing of one's self in utter devotion and dedication, and at the same time that marvellous recovery of the self which entitles man to say—"I and the Father are one".' Here, as in his other references to the religious attitude, Jones avails himself of Christian expressions; but he might equally well have quoted the well-known saying of the Indian sages—'tat tuam asi'. In some respects the statement 'thou art the Absolute,' addressed to every one, is more impressive and unmistakeable than the statement 'I am the Absolute,' which might be taken, and has been taken, as the special claim of a single individual. But I am inclined to think that both these modes of expression should be used somewhat sparingly. They seem to represent only one aspect of the truth. And, of course, it is hardly necessary to add that neither Jones nor the Indian sages meant to deny that man has a finite aspect, as well as an infinite one—that, if he is a God, he is still, as Browning put it, only 'in the germ'. But what Jones was protesting against is the tendency to speak as if he were nothing more than a 'finite centre'. Not only may he transcend his limitations by identifying himself with the divine, but he may also identify himself with his fellowmen. In so far as he 'loves his neighbour as himself,' he may be said to have made this identification; and, if it be urged that such love is rare, Jones at least would reply that, in the love of a mother for her child, it often seems to be fully realised. And I do not think that either Mr. Bradley or Mr. Bosanquet would deny this. But it is perhaps true that they tend to lay the emphasis rather strongly on the finitude of the individual, especially in their references to the moral life, and in their attitude to the question of immortality.

With regard to the relation between morality and religion, it is

important to remember that both these terms are highly ambiguous. In primitive communities religion is apt to mean little more than a number of ritual observances, chiefly designed to avert the jealousy of supernatural powers; while morality means the rules that regulate the actions of human beings with reference to each other and to the society to which they belong. At such a stage it can hardly be doubted that morality is the higher of the two. But when religion ceases to mean the dread of demons and comes to mean reverence for our highest ideals, and when morality ceases to mean obedience to law and comes to mean the effort to realise our ideals, the relations between them take on a very different character. Sir Henry Jones insisted on interpreting both terms in the highest sense that can be given to them; and his complaint against Mr. Bradley and Mr. Bosanquet is that they tend to understand morality in a lower sense, and consequently to represent it as far below what they understand by religion, and even as being somewhat antagonistic to it. This is to some extent a verbal question. Jones refers, in particular (Lecture XI.), to the chapter on 'The World of Claims and Counter-claims' in Mr. Bosanquet's work on *The Value and Destiny of the Individual;* and of course he agrees entirely with Mr. Bosanquet on the unsatisfactoriness of such a world; but he refuses to acknowledge it as the world within which the moral life of humanity is carried on. 'Morality,' he says (p. 164), 'is a continuous development of mankind's will to good. It is a growing process: the highest ideal breaking out into a succession of different manifestations as mankind moves from stage to stage.' And he urges that the supposed opposition between morality and religion is due to an effort to 'separate the two aspects of spiritual life, and substantiate these aspects in their isolation. If the ideal is regarded as real, the attitude of the spirit is religious and super-moral. If the ideal is considered to await attainment, the attitude is moral and apt to be irreligious or merely secular. And inasmuch as it is assumed that the ideal must be either real or unreal, there is no way of avoiding the option between the religious and the moral life. How both can be possible remains unexplained and a mystery incapable of explanation from this point of view.' His contention is that the antithesis of 'real' and 'unreal' is solved by the conception of *progressive realisation:* and that within this conception there is room for both morality and religion. 'Religion, in the end, is a way of life, and life is perpetual intercourse with temporary circumstance. Nor was there ever living morality not inspired by an ideal, or a moral life not in pursuit of what was held to be an absolute and final good.' He was thus a firm believer in the reality of progress, both in the individual life and in the life of humanity.

Holding such views, he was naturally led also to a belief in human immortality—not of course on the ground of a claim for compensation on account of suffering in the present life, but rather on the Kantian ground of the demand for moral perfection. The following passage gives the most definite statement on the subject (p. 347): 'It is

not possible to maintain the limitless love and power of God if the soul be not immortal. There are men, so far as we can see, who die in their sins. If death ends all, then their lives can be called nothing but failures. These persons have missed what is best; they have not used the opportunities of life to build up a good character. The failure of their lives is, so far as they are concerned, the failure of God's purpose. It was not benevolent, or it was not strong enough, to secure their well-being. And what of those individuals who have not missed the purpose of their present life—but, as we would hold, have all their lives morally "attained"? Is the result of their strivings, failures and successes to go for nothing when death comes? To affirm this, it seems to me, is impossible except to those who have not learnt to value spiritual achievement. What remains for him who thus gives up the ethical character and the universal ideal of the cosmos? We have only to ask the question to perceive that he who gives these things up, gives up the conditions under which his rational faculties can be of use. And the answer of the believer to the unbeliever is overwhelming: denial of the immortality of the soul implies absolute Scepticism." I am not sure that I quite understand what he means by 'scepticism' here. I think he means doubt with regard to the possibility of a spiritual interpretation of life.

On the exact nature of the immortality that is thus postulated, he does not greatly enlarge; but two statements at least are significant. 'My assumption is, that the intercourse between man and his world will have a character on the other side of death similar to that which it has on this side' (p. 344). 'God's goodness being unlimited, the opportunity not made use of by man in the present life is renewed for him in another life, and in still another; till, at last, his spirit finds rest in the service of the God of Love.' It seems clear from these passages that the immortality that he has in view is akin to that which is at least popularly entertained in the East—successive reincarnations till moral perfection has been attained. What happens *after* this attainment seems to be left with a similar vagueness to that which it commonly has in the Eastern doctrines. It seems clear, however, in view of what he has stated, that he could hardly have accepted the Eastern doctrine of *karma*, at least in the form in which it is usually explained. For, according to such explanations, the doctrine appears to rest on that conception of 'claims and counter-claims,' which he so decisively repudiates. The successive embodiments, as conceived by him, would not be determined by any reference to rewards or punishments for previous actions, but purely by the demand for fresh opportunities for moral growth and education. This would seem to imply a more real persistence of human personality than the Eastern sages are in general prepared to admit. A question naturally presents itself at this point with reference to the lower animals. All that Jones says on the general problem applies primarily to human life; but, at several points, he seems to

recognise that the life of beasts is not separated from humanity by an impassable gulf. He refers several times to maternal love as the supreme instance that is known to us of self-identification with another; and he recognises (p. 72) that this form of love is found in the lower animals. And, in another passage (p. 102), he states that 'the whole of the confused and, so far as we can see, cruel history of the struggle of beast with beast and man with man and both with nature, must, somehow, prove to be at every step the fulfilment of a perfect will'. This appears to point to the suggestion that animal souls also are to be regarded as on the road to moral attainment. But this is not explicitly stated. Some might even be disposed to go farther, and enquire whether plants are to be included, or those sensitive metals that Mr. J. C. Bose appears to have discovered. Once the principle of individual persistence is asserted, it is not easy to determine where the line is to be drawn.

Sir Henry Jones was not unaware that the general doctrine which he thus sets forth is beset by serious difficulties, and he admits them with admirable candour. He notices, in particular, the difficulty that arises with regard to the perfection of the divine Being. His fundamental hypothesis is that God is a Being perfect in wisdom, power and goodness. But he has been led also to regard God as immanent in the changing world. This view, as he says (p. 358), 'involves the rejection of the idea of God as perfect in the sense that He is unchangeable. It looks obvious that what is perfect cannot change except for the worse. But even were that true, it does not justify us in saying that the impossibility of change or its absence is either a feature or a condition of perfection. It is evidently a conception that is totally inapplicable to life in every form and at every stage. Life is constant self-re-creation. . . . The whole Universe is a single process; and, if our conclusions hold, the reality at the heart of that process, which expresses *itself* in it, and which in truth it is, is the Absolute of philosophy, the God of religion.' But, he adds, 'it does not seem easy to justify the conception of the Divine Being as moving from perfection to perfection.' Yet this is the view to which he gives his adhesion.

It is here, more than at any other point, that we see the real source of the difference between the doctrine of Edward Caird, which Jones in substance adopts, and that of Mr. Bradley and Mr. Bosanquet. Readers will remember the emphasis that Caird laid upon the conception of an ultimate 'triumph' of the good, and how Mr. Bosanquet criticised that conception. For the latter, as for Mr. Bradley, perfection is essentially timeless; and, so far as it can be said to show itself in time at all, it must be regarded as showing itself throughout its course. Caird and Jones, on the other hand, regarded the time process as a real aspect of the Absolute; and this seems to imply that the end is more perfect than the beginning. Perhaps there is a way out of the difficulty to which Jones does not explicitly refer. His great hypothesis, as

we have seen, is that God is to be regarded as perfect in *wisdom*, in *power*, and in *goodness*. Each of these terms seems to imply an outward reference. Wisdom must mean insight *into* something, power the ability to *do* something, goodness the love and support *of* something. Hence the nature of God, as thus conceived, would seem to imply, as it does with Hegel, a process of going out of self and returning into self. There would be what some have described as a 'metaphysical fall,' as well as a moral rise. Here again we may be reminded of the Eastern doctrine of alternating periods of evolution and involution in the Cosmos. From this point of view, God (or Brahma) would be only the *potentiality* of the completed Cosmos; and it would only be God *together with his world* that could be characterised as absolutely perfect. Or, to put it otherwise, God would not only be present in the cosmic process, but would also stand on a Pisgah height from which that process could be surveyed in its completeness, and to which the developing consciousness would eventually rise. I believe something of this kind is implied in Jones's statements. Of course, even this would not solve the problem of time; and, indeed, he does not profess to have solved that problem. On *any* 'idealistic' theory, it would seem that the Absolute must be conceived as highly complex and hard to comprehend in its totality; and, as we may see from the elaborate work of Mr. Alexander, this applies to 'realistic' theories as well. In neither case can the results be summed up in a few simple phrases; but, while Sir Henry Jones gives us to understand that the *denial* of personal immortality would be fatal to his hypothesis, Mr. Alexander is hardly less explicit in declaring[1] that the *affirmation* of it would be fatal to his. Perhaps these statements may eventually provide us with the means of applying a crucial test to one or other of them. But Jones appears to have attached no importance at all to any empirical tests.

It is hardly necessary to call attention to the excellent—sometimes brilliant—style of exposition that is sustained throughout these lectures. The author's statements are, in general, so transparently clear that it is hardly ever necessary to pause, even for a moment, to enquire what his real meaning is—though sometimes its remoter implications may remain a little obscure. He enforces his views with striking illustrations and pungent phrases, and often with very happy quotations, chiefly from Browning, Wordsworth, and the Bible. And there is a delightful optimism in his outlook on the world which it is not easy to resist. This is all the more remarkable when it is remembered that most of the writing was done at a time when he was suffering great pain. Yet he refers emphatically more than once (pp. 72 and 360) to 'the *friendliness* of the world'. If he has not solved all the problems of that world that he loved so deeply, he has at least heartened us to struggle with them.

J. S. MACKENZIE.

[1] *Space, Time and Deity*, vol. ii., p. 424.

VII.—NEW BOOKS.

The Life and Philosophy of Edward Caird, LL.D., D.C.L., F.B.A. By Sir Henry Jones, LL.D., and John Henry Muirhead, LL.D. Glasgow: Maclehose, 1921. Pp. xi, 381.

This book is a worthy memorial to a man of singularly lofty character, whose philosophical achievement, at a remarkable crisis in the development of philosophy, was of extraordinary value to the thinking world. Moreover, by the recent death of Sir Henry Jones, it acquires the interest of a record, final except for his unfinished Gifford Lectures, offered by himself, of his own thought and feeling in philosophy; so entirely was he one with his great teacher and predecessor in his attitude as a man and as a philosopher.

I purposely spoke of Caird's philosophical achievement at a remarkable crisis in the development of philosophy. Great as is the permanent value of his writings, it is difficult, perhaps, for those who now have the opportunity of beginning where he left off, to appreciate the change in the philosophical prospect effected by the huge task of spadework which he accomplished in his unhasting and unresting activity. If I were to summarise it in three words, I should say that, together with two or three others, he *set philosophy free.*

To say the very least of them, these men set the example of taking philosophy seriously, and of studying in more schools than one. It was not that they brought in an esoteric illumination from Germany. It was rather that they set out to abolish altogether at once the esoteric and the insular. They determined to know and to bring into intelligible connexion whatever was great in the world's philosophical tradition and in the life which was its foundation. Before their ample and persistent study Plato and Aristotle received a new significance, no less than the great English thinkers from Locke to Hume and Mill, and Kant with his predecessors as much as his successors. The English-speaking student at least, when he began the study of philosophy in the sixties of last century, had to beat his own path through thickets where now there are broad high roads.

And here in a further sense Caird's work set philosophy free. Not merely did he help to let in light and air, but he—not broke by violence nor cut as a Gordian knot—but disentangled with long and irksome labour —the only way in which the chains of the mind can be unloosed—the fetters which were strangling thought. With the instinct of a heroic pioneer he made straight for the centre of the labyrinth, the point where the human mind seemed arrested by irresoluble antagonisms and antitheses that admitted no movement towards unity. This point was the philosophy of Kant, in which the ends of the world, so to speak, had come together upon the modern mind.

After Caird had in 1877 published his first book upon Kant, by the time that he had taught in Glasgow for, say, five or ten years from 1866 onwards, and finally after he had published his second Kantian study—

the work of a lifetime for a man of ordinary energy—in 1889, it was clear in principle to all men that the barriers were down. The spiritual world had taken its place as simply the natural world understood in the fullest light, and within it especially the moral life as the natural life lived at the highest intensity and in the largest enlightenment. If something which was not this lesson, but rather, as might seem, its opposite, appeared to be read on the single and several pages of Kant, that was only a case of the common experience, that the great interpreter's insights are apt to be diametrically opposed to the superficial reader's assents.

It was now clear that the ancient antitheses of *a priori* and *a posteriori*, supernatural and natural, the thing in itself and the thing for us, had lost their obstructive power and reciprocally exclusive meaning. Philosophy had regained something of the amplitude and freedom which it had possessed in Plato's day; and its field, no longer parcelled into fractions, revealed endless fascination to enquirers in every corner of its connected whole. New groups of thinkers, new growths of thought, sprang up on every side, and none of them, probably, were without a serious value.

The character of this great work, due to Caird's generation, is proclaimed in the volume before us with striking eloquence and enthusiasm. It is right and natural that the Life, which occupies the first 160 pages of the book (the Letters following with 80, and an appreciation of the Philosophy with 135) should lay stress, as it does, rather on the teaching and civic activity at Glasgow, and the subsequent functions of the Mastership of Balliol, than on the genesis of the books on Kant, the influence of which necessarily came later than that of the professorial utterances. Yet a word would have been welcome on the personal aspect of these works, with the extraordinary exertion which they demanded. The Evolution of Theology indeed, is mentioned in connexion with the closing Oxford period; otherwise the treatises figure mainly in the account of the Philosophy.

The Life, however, is a fascinating study, in its tone of whole-hearted love and reverence, representing with truth and sincerity the effect of Caird's influence not merely on his personal friends, but on the enormous classes which passed through his lecture-room for the twenty-seven years of his Professorship. He had his hand, it is said somewhere in the book, on the heart of Scotland; and those of us who remember what we learned in our friendships with his students whom we knew at Balliol, can form some idea of the effect on Scotland, and especially on her churches, of this continuous stream of awakened and enthusiastic intelligences.

I can only say briefly, what I believe most of us to-day would admit, that in his political attitude and his social activity Caird, like Green, was practically always right. The chapter on the subject in the Life is exceedingly convincing and full of interest for social workers. His persistent and positive attitude, both in industrial matters and on the relations of women to the University, though never attended by noise or controversy, had a greater influence than is generally known.

Of the letters, some make up a very charming private correspondence with a lady singularly gifted both for friendship and for thought, while some, addressed to Prof. (Sir Henry) Jones, reveal Caird's cautious and modest attitude in approaching the work of Mr. F. H. Bradley. With his doubts—or more than doubts—regarding certain aspects of that work both Sir Henry Jones and Prof. Muirhead fully sympathise, and the subject is more amply recurred to in the section on Caird's Philosophy, where some attempt is made to estimate his relation to the younger groups in general. This is not the place for a discussion. But I hold myself bound to suggest my own point of view by just referring to two passages of Prof. Muirhead's argument. It occurs to me that page 280, recognising a feeling

of uneasiness apt to be aroused rather by the width of Caird's formulæ than by any want of truth in them, indicates the need of a further analysis of experience than that which the sequel of the passage furnishes; and that if pages 354 and 355 are to be read as justifiable extremes within one and the same doctrine, their union makes inevitable a fresh enquiry into the relative aspects of appearance and reality which belong to the individual.

Passing from this, I will conclude by pointing out Prof. Muirhead's well-justified allusion to Dr. McTaggart's true and remarkable estimate of the first set of Gifford Lectures, those on the Evolution of Religion (p. 332). If the great books on Kant may seem to-day to have passed into our foundations, the two sets of Gifford Lectures, and especially, for the ordinary reader, these the earlier ones, are still a delight and an illumination to students of religion. Here we have Caird's large and free method inspired by a crowning interest, which carries the reader forward, and invites him to participate profoundly in the actual experience before him. I do not think there is anything finer or more attractive in the literature of modern philosophy.

BERNARD BOSANQUET.

Hellenism and Christianity. By EDWYN BEVAN. London: Geo. Allen & Unwin, Ltd., 1921. Pp. 275.

Mr. Bevan's new volume of essays—most of them have appeared before, but a lover of good literature will be glad to have them collected—has all the charms one has come to connect with his writing, graceful style, ripe and all-round scholarship, a delicate controversial touch, an accurate eye for the *vie intime* of the human soul, fine and reverent Christian spirit. It should make a most acceptable work to any one who feels himself, as many of us do in these days, at the parting of the roads, alive to the high probability that the whole Christian view of life and duty is on trial in our day as it never has been before, and anxious to make an enlightened choice for the better part. I do not say that everyone who reads Mr. Bevan's pages will be induced to choose with him for the "reproach of the Cross," though I have myself no doubt that wisdom lies on that side. But at any rate, Mr. Bevan's reader will not be misled into choosing the other way by being offered a caricature of the Christian alternative,—and it is often caricatured by ill-informed well-wishers no less than by malicious enemies,—or by the childish pretence that the Christian interpretation of the Universe is somehow in conflict with that "science" for which we are nowadays expected to cultivate an exaggerated admiration. The first four essays deal with ground which Mr. Bevan has very peculiarly made his own as an accurate scholar in Hellenistic history and literature. We are introduced in the *Preface* to a guiding thought of the whole volume. What we call our "civilisation," apart from certain ethical and religious elements deriving from Palestine, is a development, a very recent and rapid one, from the spirit of "rationalism" which found its classic expression in Greek philosophy and literature and art, and from this spirit, in the sense of the temper of critical intelligence which insists on "getting the values of things in their true proportions" there is no getting away. The essay on *East and West* then raises the all-important question whether the rationalist spirit is only an expression of something peculiar to "Western European humanity". Is it true that "East is East and West is West," and that there is really nothing *allgemein-menschlich* about the logical temper? The question imperatively demands discussion no less in view of the recent recrudescence of every kind of uncritical

superstition among us than in view of the reckless and confident assertions of many who have no personal acquaintance with the "unchanging East" and some few who have. Mr. Bevan's essay puts very plainly some of the issues which the anti-rationalists commonly contrive to shirk. It needed to be pointed out that the inferences commonly drawn from the absorption of what were once Hellenistic and Christian communities in Syria and Egypt by an apparently sterile Mohammedanism and the decay of the once apparently flourishing intellectual culture of the Caliphate are misleading. The reminder is timely that the facts in both cases are commonly misinterpreted. The populations which seem to have lost the "Western" culture they once had, are not, in fact, the old populations of the countries in question. Hellenistic culture in Egypt and Syria did not die from want of a suitable soil but went down before conquerors from the Arabian deserts who had neither part nor lot in it. And the once promising literature and science of Bagdad, again, was destroyed by the upheavals which sent out successive hordes of Mongolian invaders from Central Asia. So that the alleged facts of the writers about the "unchanging East" never really happened. In the essays on *Bacchylides* and the *Greek Anthology*, Mr. Bevan is preparing the way for the admirable sketch given in the fourth paper, *The First Contact of Christianity and Paganism*, of the societies in Europe to which the first message of the Gospel came. He rightly accentuates the points that Christianity came in the first instance as a great message of hope to a world absolutely crushed under the terrors of the unknown to an extent we find it hard to realise, and that its immediate effect was to offer men a direct communication with a benevolent Ruler in place of an elaborate and puerile system (if the word may be used) of magical compulsions of malignant powers. The extent to which baleful astrological superstition had enslaved the Hellenistic world (as something of the same kind may not improbably enslave us again if Christianity should lose its meaning for us), is admirably illustrated from the "Hermetic" writings by Mr. Bevan. He does not refer to the literature of Neo-Platonism, but the same thing may be seen there. The greater Platonists, like Plotinus, ardently opposed the "world-rulers," even as St. Paul did; men less firm in their faith, like Porphyry, took a life-time to emancipate themselves from their terrors; how low some could sink may be learned from a work like the *Letter of Abammon to Porphyry* for which Iamblichus had so long to take a discredit he did not deserve. The essay on the *Gnostic Redeemer*, which forms a pendant to that just spoken of, discusses in an interesting way the question whether the Σωτήρ of the Gnostics is an original feature of their doctrines or an attempt to graft a borrowing from Christianity on a scheme of magic which really requires not a "saviour" but a mere revealer of spells and "words of power". Mr. Bevan inclines to the latter view, which certainly seems the more logical; I regret that I have not the knowledge of the history of Gnosticism necessary for a judgment on the issue. Two essays which follow give us vivid and pleasing sketches of the personality of the great man who, next to St. Paul, has done most to stamp the impress of a commanding personality on the whole thought of Western Christianity, St. Augustine, "the first modern man". I suspect, though Mr. Bevan's *pietas* towards the greatest intellect of the centuries when our modern world was in incubation will not allow him to say so, he, like myself, is by no means of opinion that the enduring influence of Augustine has been wholly for good.

In the short essay on *Dirt* we have a very happy attempt made with true psychological insight to throw light on the curious and universal association of the unclean and the exceptionally revered and holy under the common notion of "taboo". I commend very strongly the sober and

judicious tone of the three essays which deal specially with features of the Christian conception of the world's history which arouse a great deal of controversy at the present moment, those on *Human Progress, Eschatology* and *Reason and Dogma*. If I say no more about these essays, it is only because I could do nothing but express my own warm sympathy with almost every word of them. I am particularly delighted to see that Mr. Bevan will not consent to be "in the fashion" by expunging belief in the miraculous, the Second Advent and the presence of genuine prediction of the future in Scripture from his creed. This may damage him in the eyes of some uncompromising "modernists," but I feel assured that he has the best of the argument and that, without any superfluous jettison of articles of belief, he succeeds in his last essay, *Christianity in the Modern World*, in meeting the "rationalist" (of the Rationalist Press variety) with as much humour as logic. The germ of the whole book, to my mind, however, is the essay on *A Paradox of Christianity* with its right insistence that the supernatural hope is of the very essence of Christianity and that it is lip-service to profess devotion to Our Lord's conception of human life and duty when your view of our "condition" and destiny is all the while that of Epicurus or Horace.

A. E. Taylor.

Die Religionsphilosophie des Als Ob, eine Nachprüfung Kants und des idealistischen Positivismus. By Dr. Heinrich Scholz. Leipzig: Felix Meiner, 1921. Pp. 160.

More than ten years ago I endeavoured, by means of an extended review in Mind (No. 81), to draw attention to the importance of Vaihinger's monumental survey of the uses of *fiction* in our cognitive operations, but apparently neither my review nor its own merits availed to tempt English philosophers to undertake the 800 pages of Vaihinger's great work. In Germany its fate was very different. It ran through many editions, and founded a school. 'Idealistic positivism' now has its own *Zeitschrift, Die Annalen der Philosophie*, in which this valuable contribution to the philosophy of religion originally appeared. Its author, Dr. Scholz, is full professor of philosophy at the University of Kiel and an honorary D.D. of Berlin, and his work is a very thorough, lucid and intelligent criticism of Vaihinger's religious philosophy and kindred doctrines.

Dr. Scholz sets himself to examine Vaihinger's claims that religion is wholly practical, and therefore does not imply the real existence of any God, but only willingness to act *as if* such a being existed, and that such was the innermost meaning also of Kant's religious philosophy, at least in his most lucid moments. Coming from so great an authority on Kant, this contention naturally made a great sensation, which was increased by the copious documentation Vaihinger produced. Dr. Scholz treats it very seriously. Incidentally he discusses also F. C. Forberg, who actually held the view Vaihinger attributes to Kant, Fichte, who did not, Reinhold, and others, who anticipated Vaihinger. To clear the issue, he distinguishes several forms in which the notion of 'fiction' may be applied to religion. (1) A man may act *as if* he believed that God existed, though he *doubts* it. (2) He may act *like* a believer, though he *disbelieves*. The first is called the *sceptical*, the second the *paradoxical* religion of the *as-if*. It is however also possible (3) to act as if one *knew*, though one knows one doesn't. This is *not* the *as-if* attitude proper but may be called the *Critical*. I may here interpolate that the classification is not exhaustive, because one may (4) act as if one believed in order to obtain thereby evidence to justify the belief, and that *this* is the true pragmatic attitude. Now ac-

cording to Vaihinger Kant's deepest conviction was (like his own) the second, while Dr. Scholz holds that it was the third, and that religious pragmatism is a further and valuable variety. The exegetical struggle of Dr. Scholz with Vaihinger over the body of Kant is spirited, and almost Homeric: it leaves me with the impression that *both* champions carry off trophies. In other words, Kant is pulled to pieces, which is the usual result of coming to close quarters with him.

After this, Vaihinger and pragmatism are compared. An accurate and competent exposition of the religious bearings of pragmatism arrives at the conclusion that they are real philosophy and not preaching. Pragmatism does really overcome the conflict between faith and knowledge, and is comparable with Fichtean idealism. It agrees with Vaihinger (1) in its radical empiricism and rejection of the speculative implications which survive in Kant. (2) Both agree with Kant that theoretic agnosticism is inconclusive. (3) In both their philosophy of religion follows at once from their general principles. This is not so in Kant. They differ in that (4) The *as-if* doctrine makes God's existence a *fiction*, while pragmatism takes it seriously. (5) Vitally valuable judgments are as such called *true* by pragmatism, but *false* by Vaihinger.

Finally Dr. Scholz discusses whether either view is really tenable. Vaihinger's fundamental notion of *fiction* is attacked with almost the same objections as were urged by me in 1912, and it is shown (convincingly) that knowing can be regarded as a *falsification* of the real only if its true *aim* is supposed to be 'copying'. Dr. Scholz then criticises the core of pragmatism, its notion of truth, and finds that though it applies well to the truth of scientific theories, laws and synthetic principles, it fails to account for logical and mathematical necessities of thought, and judgments of perception and of history. It would also include conventional and beneficial lies among truths, and so is both (1) too narrow, and (2) too wide. (3) It fails to specify *for what* truths are valuable. (4) It slurs over the transition from empirical to moral verification, which is wholly different. It is further pointed out that moral and religious convictions are not merely tested by their vital value, but to a large extent demand theoretic justification.

Hence Dr. Scholz in the end rejects the reduction of religion to a practical attitude which is common to pragmatism and the *as-if*. Religion involves a consciousness of God as the *ens realissimum*, and it is impossible toaffirm God in practice, while denying Him in theory. So much for Vaihinger. As for pragmatism, it has done good service by pointing out that indifference to religion is not a merely theoretic attitude; but, though philosophy can, religion cannot, accept its reduction of God to a working hypothesis.

I trust that the above analysis makes it clear that Dr. Scholz's argument is not of the gaseous consistency so common in religious philosophy, but furnishes food for reflexion to all who are interested in religion. It disposes, I think, of Vaihinger; but not of pragmatism. For it is *not* true that the pragmatic interpretation will not apply to *all* truths.

(1) As regards the 'truths' of logic and mathematics, Dr. Scholz does not appear to have been acquainted with all the relevant literature. (2) As for judgments of perception, it is fallacious to argue (p. 140) that their truth has to be presupposed by pragmatism, because perceptions yield the *data* to be evaluated. For it is not admitted that truths of perception are really 'given'. Perceptions are always *interpretations* of *data* (which can never be got 'pure'), and as such may be true or false, valuable or the reverse. (3) It is amazing that the pragmatic import of historical judgments should be denied at a time when every nation is finding its political past a mill-stone round its neck, and denied by a German, when

the Versailles Treaty and the whole treatment of Germany explicitly professes to rest on a belief about the historical causation of the War. Dr. Scholz's error is however plainly due to the common confusion of propositions with judgments. Whenever a historical proposition is turned into a living judgment, it will always be found that its truth is (*a*) asserted against an alternative version of history, and (*b*) based on consequences that are still operative and verifiable. (4) The difficulties about beneficial and conventional lies (which are only verbally lies at all) all arise from the ancient blunder of converting simply 'all truths work'; they are easily disposed of by distinguishing the various sorts of truth-claim and the parties involved, and by observing that any lie works only so long as it is taken as a truth. (5) If the answer to the question 'for what are truths valuable?' is to be stated in general terms, it must be 'for purposes'. Anything more specific demands a specification also of the truths. (6) It may be admitted that many religious doctrines have 'theoretic' implications, but it does not follow that these cannot be tested pragmatically. For just because 'theory' is essentially a means to 'practice,' and all our activities are ultimately vital, the distinction between empirical and moral verification cannot be made absolute. Dr. Scholz makes the further mistake of supposing that because in religion considerations other than those of ordinary empirical evidence and scientific reasoning become relevant and have to be added, the latter are to be ruled out. Whereas pragmatism has no reason to assume *a priori* that religious hypotheses are incapable of verification in *any* way that is capable of engendering conviction in the human soul, or to abandon its belief that "by faith we may also *know*".

F. C. S. Schiller.

The Ethical Theory of Hegel: a Study of the Philosophy of Right. By Hugh A. Reyburn, Professor of Logic and Psychology at the University of Cape Town. Oxford: at the Clarendon Press, 1921. Pp. xx, 271.

This book was dedicated to Sir Henry Jones by an admiring pupil; and the fervent love of the 'sincere milk' of the Hegelian gospel, by which Jones was so eminently distinguished, has obviously been, in a high degree, communicated to his disciple. Hegel's *Rechtsphilosophie* has already been translated into English (though perhaps not quite satisfactorily) by Mr. S. W. Dyde; and what Mr. Reyburn gives us here is a careful and most instructive commentary upon it, with occasional critical discussions. To present any constituent part of the philosophy of Hegel in a way that makes it thoroughly comprehensible to educated English readers is by no means easy; and Mr. Reyburn seems to me to have carried out his task with a remarkable measure of success. He knows where the difficulties lie, and he does not shirk them.

He wisely devotes a considerable part of his book to a general account of Hegel's philosophical attitude and method, explaining, in particular, the relations of the Logic to the more concrete studies, the sense in which Hegel's identification of the Real and the Rational is to be interpreted, and the place occupied by the *Rechtsphilosophie* in the system as a whole. He then proceeds to a detailed analysis of the Philosophy of Right, devoting special attention to everything that seems liable to misinterpretation, supplementing his account by frequent references to other writings of Hegel, and occasionally, especially near the end, calling attention to what appear to be inconsistencies or defects in Hegel's treatment.

The work is so well done that one is tempted to wish for more; and

perhaps I cannot do better in this review than try to indicate some ways in which it might possibly be improved in a future edition.

I suppose I ought not to suggest any change of title; but it may at least be permissible to remark that 'Theory of Ethics' is calculated to convey a somewhat erroneous impression. Anyone who took up the book expecting to find in it a discussion of the topics commonly dealt with in ethical treatises, such as the relations between desire and will, the meaning of motive and intention and the judgments that are passed on them, the *summum bonum*, the duties and virtues, the methods of determining what is right (as distinguished from what are *rights*), would be a good deal disappointed. Moreover, the term 'ethical' is used in the body of the work in a somewhat special sense. No doubt to call the book 'Theory of the State' would suggest too narrow a reference; and 'Theory of Rights' would be puzzling. But I do not see why it should not be called 'Social Philosophy'. All the subjects dealt with appear to fall readily under that designation. But no doubt the distinction between Ethics and Social Philosophy is a somewhat thin one; and perhaps Hegel would not have admitted it.

Passing to the method of treatment, I am inclined to agree with Mr. Reyburn that this part of Hegel's system is peculiarly well adapted to serve as an introduction to his philosophy—especially perhaps for somewhat mature readers who have already acquired an interest in legal, moral, and political questions. Hence he was well advised in devoting a considerable part of the book to a general explanation of the Hegelian point of view. But I believe he might, with advantage, have done rather more than he has to remove some of the prejudices that are apt to be present in the minds of readers on their first introduction to Hegel—especially readers who are already familiar with very different methods of treatment. For such readers it is probably not enough, for example, to explain that in the statement that 'The Real is the Rational,' Reality has to be understood in a special sense. What is wanted is rather some concrete instance that would make the meaning plain. I suggest that the case of the Family might be taken as such an instance. The normally permanent monogamic type seems clearly to be the only one that can be rationally defended. Now, many other types have certainly existed. Westermarck's History, which has just appeared in an enlarged edition, gives a very full account of them. But what one learns from reading such a history is that the other types have only had a sporadic existence at certain times and places in which the circumstances were peculiar. 'What is deepest rooted in nature,' as Carlyle put it, is what on the whole is 'found growing'. Instances of this kind seem to me to make Hegel's meaning clear in a way that no definition of terms can do.

Again, readers of Hegel are apt to get the impression that he is needlessly hard—almost brutal. He was of course aware that human life cannot be altogether made into a bed of roses; and, like Carlyle, he thought it necessary to set himself in opposition to certain forms of sentimentality that were prevalent in his time. His emphasis on punishment is one of the points at which this is apparent. Now, some readers might be apt to think that, like Carlyle, he was in favour of the treadmill, or that he would have approved of some of the harsh methods that have prevailed in certain English schools. To guard against this, it should be clearly pointed out that the kind of punishment he has in mind is that which the offender himself feels the need of when he repents—such a punishment, for instance, as Dr. Johnson inflicted upon himself when he stood bare-headed at his father's bookstall in Uttoxeter. His decisive condemnation of slavery is well emphasised by Mr. Reyburn; and here also his attitude might be contrasted with that of Carlyle.

Finally, there is a general impression in many quarters that Hegel's theory of the State laid the foundations of what is now commonly referred to as Prussianism. Mr. Reyburn's book was written before the War ; and this ground of attack was consequently not so much present to his mind as it would have been now. When a new edition is called for, it might be well to refer at some length to this subject. It could, I think, be pointed out that Hegel's approval of Prussian methods has been considerably exaggerated. Some of his own contemporaries blamed him for the half-heartedness of his support. His conception of the place of the monarch seems clearly to have been suggested by the British constitution rather than by the Prussian. But, it may be urged, did he not at least represent war as a permanent necessity, and did he not ignore the suggestions that had been already put forward by Rousseau and Kant for the establishment of a condition of lasting peace ? Perhaps he ought to have taken more account of these. I think Mr. Reyburn is right in believing that the concluding part of the *Rechtsphilosophie* is the part that is most open to criticism. The best defence, I suppose, is that Hegel was, contrary to what is sometimes thought, an eminently practical person. He was anxious not to give his support to anything that could not be seen to be, in Aristotle's phrase, *πρακτὸν καὶ κτητὸν ἀνθρώπῳ* ; and at the time at which he wrote he might well have been excused for thinking that such proposals as those of Rousseau and Kant were Utopian. But there does not seem to be any ground for thinking that he regarded war as in itself a good, or as a normal condition of national life. He mentions it as the negative element that confronts the State in the dialectic of history and as being essentially tragic. We might have expected him to point to a higher unity in which the weakness of the isolated State could be overcome. But Hegel declined the role of prophet. He was a believer in progress, as his *Philosophy of History* shows ; but he was convinced that the philosopher, like the owl of Minerva, can only venture to come out with his interpretations when the day's work is over. This may have been a weakness in him ; but at least it would not be easy to point to any other philosophers who have been much more successful in forecasting the future. He certainly did good service, at a time of considerable anxiety and serious dismemberment, in emphasising the importance of a stable and well organised constitution. I think he had a keen consciousness of the weakness that lay in the somewhat somnolent Gemüthlichkeit of his native Würtemberg, and looked to Prussian energy as a corrective. Also it should be remembered, as Mr. Reyburn points out, that if, in the *Rechtsphilosophie*, which is mainly concerned with the dialectical evolution of the State, he seems somewhat to overrate the importance of that aspect of human life, there are other writings of Hegel—especially those concerned with art and religion—in which he deals with modes of experience that transcend the limitations of the State.

Mr. Reyburn is careful to state in his Preface that the fellow-workers who assisted him are not to be held responsible for his 'mistakes'. I must confess that I have not succeeded in detecting these. There is, indeed, an unfortunate slip in the Introduction (p. xx), where he says that he translates *Realität* by 'reality' : it is by 'actuality' that he translates it. There may be other small defects in the body of the work ; but, on the whole, it may be heartily recommended to all who desire to gain a genuine insight into the social and political side of Hegel's philosophy ; and, as Mr. Reyburn is still a comparatively young writer, it may not be irrelevant to add that his work gives promise of still greater achievements in the future.

J. S. Mackenzie.

Self and Neighbour. By E. W. Hirst. London: Macmillan & Co., Ltd., 1919. Pp. ix, 291. 10s.

Mr. Hirst's book is in every way a competent piece of writing. He has worked out for himself a doctrine of the Moral Good; and he presents it with a firmness and a quiet dignity that testify to his belief that his view will stand, as it has obviously sprung from, the criticism of reflexion and of practice. One is a little struck by the contrast between the essential poise and self-possession of the book and its anxiety to relate its teaching at every point to kindred doctrines. Mr. Hirst knows his own mind: and his book would perhaps have been more direct and convincing if he had been less careful of the opinions of others. But it is a fault of a generous mind: and it does not affect the value of a genuine essay in constructive ethical philosophy.

The first part of Mr. Hirst's book is a critical historical survey of leading types of ethical theory. His aim, it is clear, is to show that the defects of these theories have arisen from their failure to start from and remain within what is to Mr. Hirst the central ethical and psychological fact of community. It is easy, of course, to find in at least one main stream of ethical thinking, ample recognition of the dependence of 'ego' on 'alter,' and of both on 'society'. But Mr. Hirst's view is that the relation has not been taken concretely enough, and has been constructed into something other than it actually is. Either the relation is one obtaining between two independent selves, and therefore essentially secondary—so that the moral good is stated in terms of individual persons: or (more rarely) the persons are mere terms of a relation, so that the good is not 'personal' in any recognisable sense of the word. The first alternative gives the varying forms of egoism and of altruism, and the attempt to find a satisfactory mediation between them. The second on which Mr. Hirst has less to say in Part I., though it is just as relevant to his purpose, is really the denial of personality as a moral end at all.

The criticism leads up to Mr. Hirst's exposition of his own view. Essentially this is an attempt so to interpret the doctrine of community as to give reality both to selves and to the relation between them, to hold that while selves are constituted by their relations to one another, the selves which are thus constituted are themselves real; and their relations are created by their own activity. The 'good,' for Mr. Hirst, is just this 'inter-personal activity,' the good at once of a self and of all selves, at once personal and social. "It is not 'good' which is common, but 'community' which is good." It is in this direct inter-personal relationship, in this activity for the attainment of common ends that the individual finds his 'good': and in finding it, apprehends that the divergence of interest between 'self' and 'others' does not exist.

This activity is not formal. It is not a mere will to good, but a will to achieve such ends as spring from the reality of its existence. The basic and dominating thing is that in a society of personalities living at this full stretch of common life, purposes do emerge: and if, on one side, it is these purposes which seem to give content to the common will, on the other hand, they are good because they express that will at its fullest. The simplest and most direct form of this inter-personal activity is in the relation of parent to child: and in the purposes that spring from this relation, there is a type of the working of the good will in every kind of manifestation. "If it be asked, what is the nature of community as an ethical principle, we can only reply that, indefinable as it is in itself, it is such a life as a man would live who regarded humanity as a family." This experience, Mr. Hirst insists, and the justification of it as the 'moral good,' are not to be compassed by intellectual means alone. "To be

fully known, it must be experienced. . . . It is not describable in merely intellectual terms: for it is a form of the life of the self as a whole, and is illustrated in the unity felt by the members of a family."

Mr. Hirst adds several interesting chapters on the theoretical and practical implications of his doctrine. I should like especially to draw attention to his treatment of the relation of metaphysics and ethics. But the critical question for his book is as to how far he has succeeded in making this conception of the good as inter-personal activity at once consistent and concrete. It is a difficult position to state: the matter of emphasis is so all-important. But Mr. Hirst certainly seems to me to have done considerable service in the mere stating of the problem, and to have given a persuasive defence of his general thesis. He might, perhaps, since the point is so very central to his position, have elucidated more fully the process by which he conceives that the ends which are sought in the primary form of the family so expand that they require for their achievement a wider community of life inspired by the same inter-personal activity. But the principle of the deduction is clear enough: and Mr. Hirst may fairly claim to have shown the possibility of basing an ethical theory on a consideration of the concrete relationships within which selves maintain themselves and discover their own nature.

H. J. W. H.

Evolutionary Naturalism. By Roy Wood Sellars. Chicago: Open Court Publishing Company, 1922. Pp. xiii, 343.

Mr. Sellars has written a book notable in the kind to which we have now become accustomed from the producing generation of American philosophers. It is an industrious contribution to the coming "final" system of Evolutionary Naturalism. Starting with an exposition of the theory of knowledge known as Critical Realism, Mr. Sellars ploughs remorselessly through ten chapters of category-genetics, and attains the crux of his system in the penultimate chapter on the Mind-Body problem.

All the modern discussions are familiar to our author, more so, perhaps, than the older philosophies, for he shows a keen anxiety to be on the crest of the incoming wave; and he has obviously been influenced by "the truth" in all these vain attempts, and has dexterously eliminated the falsity, and "by stepping warily and using distinctions" (p. 194) has welded the whole together into a world-view in harmony with the conclusions of science, and largely content with those conclusions. In a phrase, he offers a view of nature as a self-explanatory, self-sufficient, self-creating, physical reality, as opposed to a "dead-level" mechanical naturalism. And if as against mechanism he cites "creative synthesis," even more pointedly as against supernaturalism he offers evolution and the genetic method. His is a naturalism which does not level down, and if it does not, as idealism does, level up, at least it faces facts such as the appearance of the new quality of life in organic systems, and more important still, that crucial instance of such novelty, the conscious experience of man which emerges from, and in turn guides, his living body.

Into the details of Critical Realism I cannot enter, but I must indicate its main results as they affect the present speculation. The fundamental thing is the distinction between subjective *contents* and *objects* known, which corresponds more or less with the distinction of two kinds of knowledge: *awareness* of contents and *knowledge-about* objects. At the same time, contents are *objects* of awareness; they are subjective only because they are "intra-organic responses to stimulation of sense organs" (p. 26). Mr. Sellars' use of the terms *content*, *object*, and *thing* is very

perplexing, but I gather that the term *content* covers not only sense-data but also the phenomenal objects of perception, as well as propositions; everything, in fact, except physical things (and perhaps other minds). The phenomenal object, although it is not a thing, is more than mere passive sensuous content; it involves judgment, and is the synthetic unity of sense-datum and meaning, dominated by the "sense of thinghood" (p. 26). The plain man mistakes this object-content for a thing and is thus guilty of Naïve Realism; the Idealist makes the converse blunder. But the Critical Realist knows that the physical thing is not the object of perception, and is not given to awareness. Nevertheless we may *know about* it, and that knowledge is the result of inference from the patterned and continuous data (p. 190), which are already adaptive responses to the things which cause them. In perception we "clothe the object" (p. 34) in the sensuous content, but in knowledge-about we use the content as material for analysis and construction. And what do we know about physical things? We know that they are orderly, massive, and executive (p. 15), have comparative size and position, structure, texture, constituents, relations; that they change, behave, and have capacities of various kinds (pp. 35, 42).

This is not the place for detailed criticism of such a theory, but those who are interested in the matter will find that Mr. Sellars is really in difficulties because he has not realised (or remembered) that the distinction between awareness and knowledge-about is not at all identical with that drawn by Mr. Alexander between enjoyment and contemplation.

However that may be, it is upon his epistemological distinctions that Mr. Sellars bases his solution of the Mind-Body problem. That solution is that mind is a "physical category" (p. 299), that consciousness is a "natural ingredient of functioning cortical systems" (p. 294), and that the reason why we cannot grasp the connexion is that while we have *knowledge-about* the organism, we have immediate *awareness* of consciousness itself. Now that is undoubtedly ingenious and contains a profound truth. Nevertheless, however we might be prepared to allow that a distinction of enjoyment and contemplation would conceal the actual emergence of enjoyed consciousness from contemplated cortical processes, there is certainly no reason to suppose that it must conceal the secretion of the objective contents of awareness. If that process is not clear it is simply because it is secret and occult, or, as I should suggest, highly speculative.

It is from this notion of Creative Synthesis that Evolutionary Naturalism proceeds. Mr. Sellars lays stress on the development of biological science as tending to undermine the earlier "dead-level" naturalism. Even inorganic matter is active, subtle, and responsive; it lends itself to "mobile integrations which under the hand of time may lead to tremendous novelties" (p. 263). Creative synthesis means "the frank admission of novelty without an appeal to a superphysical agent" (p. 297). Now, however valuable that notion may be for scientific methodology, it is not philosophically satisfying. There is all the difference in the world between *explaining* a difficulty and *getting used* to it. Philosophy must do more than "reflect the contemporary drift" (p. 298). What are the implications and limits of creative synthesis? I suggest these problems as worthy of Mr. Sellars' earnest consideration. I do not say that they would lead him further than he is prepared to go, but they would certainly lead him further than he has gone. Nor would his journey necessarily be in the direction of a vicious supernaturalism; rather the contrary: it was not a good naturalistic explanation which was offered by the first High Priest, that having cast gold into the fire, "there came out this calf".

H. F. Hallett.

An Analysis of Certain Theories of Truth. By GEORGE BOAS. University of California Publications in Philosophy, Vol. v., No. 6. Berkeley, Cal., 1921. Pp. 187-290.

The University of California has long distinguished itself by the abundance and quality of its philosophic publications, and the above study takes high rank among its productions. It is well argued and well written and makes a real contribution to its subject. Dr. Boas starts by pointing out that theories of truth have the peculiarity of forming part of their own subject matter, *i.e.*, of being themselves cases of the 'truth' they set themselves to define. Hence any definition of truth that is adopted must (1) be true of the definition itself. This he calls being *self-critical.* (2) That it may not begin by begging the question, it must be *general, i.e.*, must not presuppose any specific metaphysic or psychology or epistemology. (3) It must produce a tenable account of *falsity.* (4) It must be *applicable.* He then proceeds to examine how far the current theories meet these requirements.

(*a*) The first of these he calls *Logical Hedonism* and regards as very common. This insists that truths must please, and are adopted because of the 'emotional thrill' they give. It is itself pleasing, and so 'self-critical'. It is relativistic indeed, being relative both to those it pleases, and as yielding no absolute truth : but this does not damn it. For by its own criterion a theory could become absolute only by pleasing every soul or an absolute soul (the latter only if it were absolutely the only soul !). It is also 'general,' and accounts for falsity, by reducing it to discomfort. But it is not *applicable* to all cases. We cannot decide by its means whether Cæsar crossed the Rubicon in A.D. 1493 or in 625 B.C., if we don't care when he did.

(*b*) Truth as the irresistible is also subjectivistic. What cannot be denied and must be believed, is true. This theory is not 'self-critical'. For if it were, it would be universally adopted the moment it was heard. Nor is it general, for it demands a *passive* subject. It has no criterion of falsity ; nor applicability, because it cannot say when psychological impressiveness passes into logical irresistibility.

(*c*) The 'correspondence' theory has suffered from "the obscurity of the obvious" and was never stated fully. Now, it is never stated openly. Here the initial difficulty is its inapplicability. We have no means of knowing whether the correspondence with 'fact' in which the theory consists, exists in fact. For this same reason it cannot be declared 'self-critical'. It accounts indeed for falsity as correspondence with non-existent fact ; "but to what do *meaningless* propositions correspond ?" Or practical ? In some forms, however, it appears to be 'general'.

(*d*) Formal consistency, or lack of contradiction, may be taken as assurance of truth. This makes truth systematic, but does not apply to the postulates on which the consistent systems rest. Also a system may be consistent and false. In fact two false, or one true and one false, propositions may be consistent, and two false, or two true, propositions, inconsistent (*e.g.*, if they belong to different geometries). So the theory is not 'self-critical'. It is 'general' enough, but can recognise falsity only in a few self-refuting propositions. It cannot be applied, because a contradiction only tells us that something is wrong, not what is right.

(*e*) Can truth be made consistent and absolute in one total truth and the coherence of the one significant Whole be The Truth ? Such truth would be reality, and human truth pales into insignificance beside it. However "the theory is not self-critical. For if truth is the whole, statements about truth are not true" (p. 248). They cannot be more than partly true. So absolutism also, of which the theory asserts the truth,

has only partial truth, and there's no knowing how far it is true. Even the absolutist moreover must admit that the Whole is not wholly true, but includes some falsity, *e.g.*, 'Absolutism is false'. Ergo it is either true that absolutism *is* false, or else it is *not* the whole of truth. Further, absolutism is not 'general'. It requires a specific metaphysic, theory of judgment and logic of (internal) relation. It seems, however, to account for falsity. Falsity means the claim of a partial judgment to be true. But as *all* judgments are partial and *all* claim truth, what follows is (1) that all are false, and (2) that only absolutists err. The former consequence might be welcome, though it would not tell us what made them false nor what the distinction between 'true' and 'false' could mean. The latter means that the absolutist alone can be aware that the truth-claims he makes are false. His adversaries would not make them, if they thought them false. Lastly, the truth that all partial truths are only partly true cannot be applied to determine how true they are.

(*f*) There remain only the voluntarists. For them truth arises out of the interpretation of signs. Such interpretation is purposive and experimental, and continues till the impelling interest is satisfied. Now this theory is plainly 'self-critical'; it is willing to be tested by its working. It is also general enough, though it implies an activist epistemology. Error it explains as the 'anti-truth' which defeats it. Its applicability is assured, because it is built for application, and lets verification determine verity.

I trust that the necessity of compression has not entirely obscured the dialectical brilliancy of Dr. Boas's argument, which calls for criticism on one point only. Dr. Boas at times substitutes a proposition for a real judgment, as formal logic teaches its students to do. This is why he dismisses Logical Hedonism for failing to get any pleasure out of 'Cæsar crossed the Rubicon in A.D. 1493': he has failed to notice that this is a paper 'judgment' or mere proposition, until it has been put in a context in which it is really asserted and its truth or falsity matters. The moment this is done, its emotional value will appear. Thus the 'hedonistic' theory will satisfy the four tests as well as the voluntaristic—a result foreshadowed by the fact that it often fuses with it into the conception of truth as the satisfaction of a purpose, and by the common charge that for a voluntarist truth is whatever he wishes to believe. So far from admitting, however, that "if 'true' is defined as 'agreeable' the two terms ought to be equivalent" (p. 193), Dr. Boas should have pointed out that the demand that truth should be desirable, satisfactory or agreeable, could not be converted into 'anything agreeable is true'. It cannot mean more than that it is *a species* of the agreeable, and if so its *differentia* must be stated. 'Logical hedonism' would thereby transform itself into the innocuous theory that truth was the pleasure or value arising from the satisfaction of a cognitive purpose. Which would be quite a good definition for human purposes.

F. C. S. Schiller.

Fichte et son Temps. Vol. I. By Xavier Léon. Paris: Armand Colin, 1922. Pp. xvi + 649.

M. Léon has planned his work on a magnificent scale. In this volume he deals only with Fichte's life till the departure from Jena at the age of thirty-seven. Two more volumes will be required to complete his task. So large a book enters naturally into much detail. But M. Léon never allows the details to obscure the main outlines. In spite of the trees we can always see the wood, and this is the highest praise that can be given to the author of a biography.

As long ago as 1902 M. Léon published a work on the philosophy of Fichte which gave a most full and admirable account of it. In the present volume, in consequence, there is no very long exposition of the works published by Fichte in the period under consideration. It is his life, and the influences which affected him, of which we learn.

There are three things which are brought out very clearly in this volume. The first is that the ardent belief in the virtues and destiny of the German nation which is so marked in his later life was absent in his earlier years. He then looked to France for the salvation of the world (Fichte, unlike Hegel, was always convinced that the world was in a bad way, and required salvation very urgently). As late as 1799, he contemplated removing to the University of Maintz, which was just then in French territory, and hoped to be followed by many of his colleagues and pupils. It was not till the establishment of the Empire that he decided that France was not the destined saviour of the world, and that Germany was. This change of opinion took place later than the period dealt with in this volume, but it is sketched very effectively by M. Léon in his Introduction.

The second point which becomes clear from M. Léon's book is the tremendous position which Fichte held in Germany in 1799. No such position had then been held by so young a man since the beginning of modern philosophy. Berkeley and Hume, indeed, had published their greatest works when they were twenty-five and twenty-eight. But the *Principles of Knowledge* was only read by Berkeley's contemporaries to be laughed at, and the *Treatise on Human Nature* was not read by Hume's contemporaries at all. At thirty-seven Fichte was acclaimed as the thinker who had succeeded and had surpassed Kant. He was the leading philosopher in a nation which was more interested in philosophy than in any other subject.

Then came the accusation of atheism and his dismissal. M. Léon's account of this is full of interest. There cannot be the least doubt that, in any ordinary sense of the word, Fichte was at this time as much an atheist as Spinoza. "To believe in God"—so M. Léon sums up Fichte's position—"is not to affirm the existence of some unknown, mysterious, and incomprehensible being; it is to act conformably to duty" (p. 519). Fichte was accused of atheism in the ordinary sense of the word, and it is no answer to the accusation to say that he was not an atheist in a sense of the word which had been invented by himself. The question was whether he should be allowed to teach what is ordinarily called atheism.

There was only one answer to that question in 1799 for a small German state which was badly frightened by the French Revolution. The administration of Weimar, indeed, would probably have been content if Fichte had agreed not to teach the condemned doctrines, and would have allowed him to keep his chair. Kant had agreed to this course in connexion with his *Religion within the Limits of Mere Reason*, but that was only an appendix to Kant's philosophy, while Fichte's philosophy centred round his doctrine as to God.

It would probably have been impossible for Fichte to keep his chair in any case, and the unfortunate letter to Voigt rendered the matter hopeless. "I would have dismissed my own son," Goethe wrote, "if he had allowed himself such language in relation to a government." Goethe was not only Goethe, he was a German official of 1799. But it may be doubted whether any University, in any period, would have retained a Professor who had written such a letter. Fichte himself, while maintaining that he was perfectly right, admitted that the Weimar authorities could not, from their standpoint, have acted otherwise (p. 620).

The author hopes to publish the remaining volumes in 1923 and 1924.

They will be expected with impatience by every student of the great days of German Idealism.

J. Ellis M'Taggart.

Lotze's Theory of Reality. By E. E. Thomas, M.A., Late Fellow of the University of Wales. London: Longmans, Green & Co., 1921. Pp. 1, 217.

Lotze's theory of thought, our author says, 'has already been adequately dealt with by Sir Henry Jones,' and Mr. Thomas therefore restricts himself to Lotze's theory of reality. Indeed, he completes Sir Henry Jones's original project; for the preface to Sir Henry Jones's book promised a companion volume on precisely the subject of this one, and as Sir Henry apparently abandoned his design long before his lamented death, he left the field clear for another author (may we say for another Welshman ?) to continue what he had begun.

On the other hand, this state of affairs is perhaps unfortunate for the younger author. Comparisons are scarcely avoidable, and there is nothing in the present book to match Sir Henry Jones's brilliant introductory chapter on 'The main problem of Lotze's philosophy'. Mr. Thomas, it is true, deals in part with the same general subject in his introduction (which is largely historical) and in his concluding chapter (on 'Lotze's achievement and influence'); but although he says the right things, he always says them tamely, and anyone who requires an introduction to Lotze (and is not familiar with Sir Henry Jones's book) will find it very hard to infer from this one why Lotze asked himself the questions that he did ask, why he reasoned as he did, and what manner of man he was. Lotze's *Stoff-Hunger*, his zeal for the ordinary consciousness; his consequent attempt to clip the wings of Hegelian idealism, on the one hand, and of scientific naturalism on the other hand, and the other aims which Sir Henry Jones portrayed so vividly, are treated here as if they were dead issues to be set down, conscientiously, in tolerable order.

Mr. Thomas, indeed, has so little sympathy with Lotze's *Stoff-Hunger* that he passes over the whole of the second book of the *Metaphysics*—the Cosmology—in his detailed exposition. On the other hand, his first six chapters make a fair attempt to deal with the first Book, and the eighth and ninth begin the discussion of Book III. (Psychology), although they turn very quickly to the treatment in the *Microcosmus*. Two chapters on the metaphysical import of the *Logic* come next, and Lotze's suggestion at the end of the *Metaphysics* introduces a chapter on "Moral Values as determining the nature of reality". The seventh chapter ('The passage to the human soul') gives no references except two (on the same page) to a section of the *Microcosmus*.

In view of Lotze's lengthy and involved philosophising it was, perhaps, inevitable that Mr. Thomas should circumscribe his discussion somewhat in the above fashion. Certainly, two of the main contentions of Lotze's general metaphysic—the attempt to prove that things are selves, and the place assigned to M—are fully discussed in this volume, and Lotze's third main contention—his doctrine of relations—is treated (although inadequately) at some length. On the other hand, the reader would be helped if the references were fuller, and if something of what is omitted were indicated in footnotes at least.

If the discussion is never very lively, it is always patient and painstaking. Mr. Thomas does not obtrude his own standpoint; he has no axe to grind; and he deserves all the praise which is due to these estimable qualities. *Per contra*, his book would have been far better if he had

treated the English language with reasonable respect. The word 'data' is not singular (p. 195); there is no excuse for speaking of 'structional' (p. 149) or of 'exclusivity' (pp. 92 and 93); on page 93 'like' should be 'as'; and no one should speak of 'resting universality and necessity in a reality' (p. 147) or of 'arriving upon' anything (p. 1), or of 'feeling a startle' (p. 34) or of 'approximating' one thing to another (p. 115). Among a host of sentences which might have been better put, I cite the following: "Thus the fact of the existence of bodily sensations, and also the fact that there is a changing individuality of experienced sense content different from the permanent individuality of sense content as going to the constitution of an objective world, go to show the existence of a soul life which is exclusive of, and which stands over against the world of objects" (p. 93).

"Lotze" is printed "Lotz" on pp. xlii and xliv, and the reference to *Met.*, sec. 329 (p. 105 n.), should be to sec. 239.

JOHN LAIRD.

Le Règne de la Pensée. By PAUL DECOSTER, Professeur a l'Université de Bruxelles. Bruxelles: M. Lamertin, 1922. Pp. 93.

This is the sequel to *La Réforme de la Conscience* which was noticed by the present writer in MIND, April, 1920. These two little books, each of about ninety pages, are full of profound thought, and though not easy reading will well repay study; for they represent an attempt to develop a philosophy which shall hold consistently to the central thought of "intrinsic value". Such a philosophy owes its importance to the fact that it is the spiritual analogue of a pure mechanical philosophy: both represent an attempt at perfect consistency of outlook. The one philosophy stresses reality *per se*, and denies value; the other stresses value, and denies reality *per se*. The importance of each depends on the extent to which it succeeds in eliminating the fundamental concept of the other. For philosophies of this type, when given clear expression, are "limiting cases" which throw the maximum light on the conceptions which are at man's disposal for the solution of his problems, and enable him step by step to mark out the complexity of the field of his labours.

The fundamental aim for philosophy, on M. Decoster's view, is the discovery of what has intrinsic value. In the second place, in our search for intrinsic value we must not appeal to any "faculty," such as knowing or feeling, etc., but must rest on the whole nature of man. Thirdly, for M. Decoster, the possession of intrinsic value is the sole test of reality.

From these three propositions the rest of his argument in its main lines seems to follow inevitably. For a judgment predicating value of an independent real is a contradiction in terms. Value supposes that the subject of the value and the recogniser of it are the same. Indeed "recognition" only covers the same problem. Strictly speaking, you do not so much recognise value as act or create it; or rather, genuine recognition is possible only as an element in the act of creation.

It is not enough, however, to deny the existence, or the reality, of a world independent of a self. It is necessary to turn away at the outset even from an objectivity considered as essentially related to a consciousness. If what has intrinsic value is alone real, then our first and last concern should be with the realisation of intrinsic value. M. Decoster's fundamental point is the necessity of delivering thought "à la fois du souci de l'objectivité et de la hantise de l'Etre. La dénomination intrinsèque est antérieure en droit à toute détermination objective. Qui poursuit l'une, doit faire table rase de l'autre. . . . Non moins que l'appar-

ence, la réalité est illusoire" (32). This, which he endeavoured to justify in the *Réforme* by a criticism of other philosophies, is taken in *Le Règne de la Pensée* as the starting point, as a direct consequence of the assertion of the supremacy of intrinsic value.

We are then thrown back upon the self as the ultimate source of all value and all reality; the phenomenal world which is presented as independent of me must be shown to be derived in some way from me. Again, if we are to find in the universe any more than a single self, we must obtain our justification for it in what we discover in the single self. This is one of M. Decoster's central points; and it is worked out in his account of man in society in Ch. iii. Contact with other persons, it is obvious, is a matter of varying quality and degree; in its highest and most essential form it is extremely rare and not necessarily of long duration; but the lower forms have to be considered as degradations of the highest form. When we consider it at its best, we find, on M. Decoster's view, that the individual only obtains it by creating the other persons as part of his own personality. The social bond is not something which exists in its own right, but which must be continually produced and maintained by man's own effort.

How far it is possible resolutely to hold to the self as an "individual conscious subject" (44) and yet avoid solipsism; how far distinct personalities can exist without being either separated by an independent material or blended in a super-personal unity: are in a sense M. Decoster's main problems. They cannot be solved, he insists, by any theoretical philosophy: but philosophy is for him fundamentally not theoretical, but practical.

We have no space to enter into a discussion of the detailed development of the situation whose broad outlines we have endeavoured to indicate; M. Decoster's handling is always vigorous and full of suggestiveness.

LEONARD RUSSELL.

Lineamenti di Filosofia Scettica. By GUISEPPE RENSI. 2nd edition revised and enlarged. Bologna: Zanichelli, 1921. Pp. 442.

Prof. Rensi of Genoa first published this work in 1919, and that a new and greatly enlarged edition should have been called for so soon is the most convincing testimony to its merits. These would appear to consist rather in the eloquence and literary skill with which the case is argued, the abundance of philosophic learning and the wide range of illustration, than in any special subtlety or novelty in the plea for scepticism itself. In other words Prof. Rensi's argument is historical rather than dialectical. He divides his book into three main sections, the first of which uses the War as a peg for expounding the irrationality of human activities, while the second, called *il diritto*, displays the irreconcilable conflicts in social and political life. The third is called 'philosophy,' and argues for scepticism from the existence of error, evil and the ineradicable variety of speculative opinion. In this last section, and indeed throughout, absolute idealism is treated as the enemy to be trounced and exposed, particularly in the forms given to it by Croce and Gentile, while positivism, relativism, pragmatism and fictionism (Vaihinger and Nietzsche) are regarded as subsidiary species of scepticism itself. This line of argument, though it derives a special piquancy from Prof. Rensi's philosophic past, appears to do much less than justice to the sceptical affinities of absolute idealism, which after all is quite as much a denial of human knowledge as it is an affirmation of absolute. Prof. Rensi recognises this in the case of

Bradley, whom he regards (p. 333) as (mainly) a sceptic furbishing up again "the essential theses of Sextus Empiricus"; but he usually seeks his philosophic allies in other camps.

That he can find such allies at all becomes intelligible when we discover what he means by scepticism. It appears from his answer to the old objection that a complete denial of knowledge destroys itself by applying also to the denial itself (p. 350 f.). Prof. Rensi waves it aside as 'mere verbalism,' because for him scepticism means only a denial that *philosophy* is knowledge, and leaves both 'facts' and 'faith' intact. It can recognise that 'facts' *are*, and denies only that they can be *explained*. Thus in short, and in principle, it is "nothing but empiricism" (p. 358 n.). It is compatible also with practical certainty (p. 398), and has nothing to fear from a line of thought which substitutes it for theoretic. Consequently it can swallow pragmatism whole, without a twinge.

But can it also digest it? The purely theoretic character Prof. Rensi ascribes to scepticism renders this doubtful. No doubt, *if* to overcome scepticism it is necessary to do so 'theoretically,' "on the ground on which it arises and with arms taken solely from that ground" (p. 398), and *if* there is no conceivable objection to the position that a belief may be at once theoretically false and practically indispensable and all the better for being false, pragmatism not only cannot overcome scepticism, but must merge into it. For pragmatism does *not* offer any 'purely theoretic' cure for doubt. It *must* admit that "reason as such" does not extricate itself from the contradictions in which it gets involved. But then pragmatism does *not* draw the old sceptical inference from this situation, but deals with it in an essentially novel manner. It points out that there is no such thing as 'reason as such,' that it is an abstraction or fiction. It refuses to sever 'theoretic' truth from its 'practical' consequences. It regards the union of theoretic falsity with practical value as a monstrosity, which can hardly be tolerated as a starting-point, and cannot stand as the conclusion, of a philosophic inquiry. In short it challenges the finality of the distinction between theory and practice, and the irrelevance of practical value to theoretic truth. And so it is entitled to hold that the unworkableness of a belief *is* an *argument* against it. If a professed 'sceptic' *acts as if* he believed, he casts a doubt on his profession. His disbelief falls under suspicion of being make-believe. And if he cannot but affirm by his acts the belief he repudiates in words, he refutes his scepticism in a far more final and conclusive manner than by any trick of dialectics. This is not to say, however, that all scepticism is impossible. It implies only that, to be tenable, scepticism must become practical and develop also a mode of living.

F. C. S. Schiller.

The Psychology of Society. By Morris Ginsberg, M.A., Lecturer in Philosophy, University College, London. London: Methuen & Co., Ltd., 1921. Pp. xvi, 174. 5s.

This book is presumably intended as a general introduction and guide for those who want to know what Social Psychology is about, the sort of things that are being discussed and the different views that are being maintained within that branch of knowledge. As such, it fulfils its purpose admirably. Mr. Ginsberg's style is always perfectly lucid, his comments and criticisms are always shrewd and to the point, he has a wide knowledge of recent literature on the subject, and he has something to tell us about most of the important questions that have been raised and the views that have been put forward. There are discussions on the nature

and functions of Instinct, on the place of Reason and Will in social life, on the idea of a group-mind, on the General Will, on the nature of community, on the psychology of the crowd, on organisation and democracy, and several other kindred questions.

The greater part of the book is critical. Mr. Ginsberg is a very cautious and conservative thinker and very slow to commit himself to any positive conclusion. When he does, it is generally to some well-tested view which can claim weighty support. Thus he definitely ranges himself on the side of those who, like Prof. Hobhouse, look to the individual personality rather than to the organised society as the fundamental fact in moral and social questions. He definitely rejects any idea of a group-mind,—his criticisms of the obscurities and confusions of Dr. McDougall's position on this question are particularly good,—and he refuses to accept any such notion of a General Will as that put forward by Dr. Bosanquet and other Idealists. He is also in reaction against the modern anti-intellectualist tendencies in Psychology, and brings against them the well-founded reproach that they are founded on an entirely inadequate idea of what reason and the intellect are and on "a false separation between reason or rational will and impulse". His summary of the objections to Dr. McDougall's view of the rôle of the instincts is clear and forcible. So, too, is his criticism of Mr. Trotter and his idea of the herd-instinct. He points out very clearly the dangerous tendency of both these writers to over-simplification in their attempts to reduce a number of complex facts to some one simple process, attempts which invariably end in leaving out just those features in the situation that we most want to explain. He complains, equally justifiably, of the tendency of such writers to regard the instincts as a number of independent entities, and "to look at the organism as a whole as a kind of aggregate of them". In fact, on almost every subject that he touches, he has something shrewd and pertinent to say.

Yet even in his criticisms he leaves us too often with a sense of incompleteness. We feel that there is a lot more to be said, and that he often leaves off just as he was getting to the real fundamental point. We get the impression rather of a series of occasional reflexions than of a systematic treatment of the subject. No doubt this arises in part from the task that he has set himself of dealing with so many different points in such a brief space. But it is particularly unfortunate when he comes to deal with Dr. Bosanquet's view of the General Will. His criticisms here are fair as far as they go. But Dr. Bosanquet would probably answer that they had never faced the real fundamental points at issue. A view which rests so much on such a deeply-laid metaphysical foundation cannot be thus lightly disposed of in a few pages.

The general criticisms that might be made on the book are, firstly, that it shows a certain lack of originality, secondly, that it is somewhat disconnected, and, finally, that it gives us very little but negative results. These are really, perhaps, criticisms rather of the present state of our knowledge in these matters than of the author individually. It is true that hardly any positive results have yet been attained in Social Psychology, except those which are plainly false or inadequate. It is true, also, that no one has yet found a single guiding thread through the complicated maze of social phenomena. But it is a question whether there is not a certain obligation on anyone who writes a book on the subject to make some attempt to advance the study to some degree and to give us some new knowledge. Mr. Ginsberg's book gives a great deal of information to those who wish to know how far we have got. But it is not likely to take us any further.

G. C. Field.

The Psycho-Analytical Study of the Family. By J. C. Flügel, B.A. The International Psycho-Analytical Press. Pp. x + 259. Price 10s. 6d. net.

Mr. Flügel has written a book which not only well sustains the standard set by the earlier volumes of this series but also fills a distinct gap in psychological literature.

Many writers of the psycho-analytic school have dealt with different aspects of the relations between parents and children and some of these are, of course, at the very root of psycho-analytic doctrine. But so far as the present reviewer is aware this is the first serious attempt to deal comprehensively with the whole subject. It is written primarily for professional psychologists and advanced students to whom it will unquestionably prove of great value.

But in view of the very great importance of the subject and the rarity of good books dealing with it one rather wishes that Mr. Flügel had been able to see his way to tempering the wind for the benefit of the general reader. Ordinary people, unversed in psychology, would greatly benefit from a knowledge of the psychological forces at work within the family. They will scarcely be able to profit from Mr. Flügel's book, however, for it presupposes a knowledge of psycho-analytic doctrine and a familiarity with psycho-analytic concepts which few people possess. To describe the natural revolt of the child against parental authority as 'hatred' and the early deviations of potential sex impulses upon the nearest objects as 'incest tendencies', is psychologically unimpeachable but is certain to arouse the opposition of the laity. But it is notoriously difficult to write a book which is both technically accurate and easily assimilated by the public and this criticism is only prompted by regret that so valuable a work should be limited to a specialised public.

Perhaps the special merit of the work is the way in which the author shows how the psychological factors which operate in early childhood exert a profound influence on the child's subsequent development in every direction. This is seldom properly realised and, even where it is, parents do not possess the technical knowledge which would enable them to understand the 'sense' in which various circumstances produce their effect. Family life constitutes a replica in miniature of the social environment into which the child must ultimately enter after adolescence. Love and jealousy, dependence and emulation, authority, self-assertion, and pride are all represented on a scale which though small to the adult is full-sized to the child. And it is on the reactions which became habitual in the early years of family life that the type of behaviour in similar situations will afterwards depend.

Mr. Flügel's application of early influences to the religious and social reactions of the adult is of particular interest and seems to show how easily the whole of our national outlook on these questions could be transformed by a single generation of intelligent upbringing. This same process would probably remove one of the chief predisposing causes of neuroses. But the millennium will scarcely come yet; even the most enlightened and sagacious parent would find it difficult to steer an even course among the manifold dangers which Mr. Flügel unfolds, and much remains to be done before the best-intentioned persons can be sure of not handicapping their children by unwitting indiscretions of one kind or another. Probably it will never prove either possible or desirable to reduce the treatment of children to an exact science: it is more likely that the desired improvement will be brought about by a gradual eradication of complexes from the minds of successive generations, so that each

deals with the next more naturally and less at the dictation of parentally inspired prejudices.

But whether this be so or not there can be no doubt that Mr. Flügel's book will be counted as a foundation stone of the steadily consolidating science of those family relationships which are at the root of social life.

W. Whately Smith.

The Æsthetic Attitude. By Herbert S. Langfeld. New York: Harcourt, Brace & Howe, 1920. Pp. 287.

This work is mainly a psychological discussion as to what constitutes the essential nature of the æsthetic attitude. The objective aspect of the problem, however, is constantly dealt with in the numerous references to objects of art, especially pictures, of which there are seventy prints, well chosen, and most of them excellent reproductions.

The main differentiating characteristic of this work is that it explicitly aims at the development of æsthetic appreciation in the reader. Yet this is sought not by means of suggestion and the expression of admiration, which is one means of æsthetic education, but by an attempt to make clear how the æsthetic attitude is produced, and what are the marks of a pseudo-æsthetic attitude.

Whatever views one may hold as to the effect, on the enjoyment of beauty, of psychologising upon one's attitude towards it, one may welcome an attempt along the lines indicated. For it is a problem on which we need the fullest information and discussion. Some hold that in turning attention inward on the mental process involved in the enjoyment of beauty, we are destroying our capacity for that enjoyment. Certainly at the moment of psychologising we are not admiring and enjoying the beautiful to the full. But we must consider the question in its widest aspect. Does an interest in psychological æsthetic problems *on the whole* lessen our enjoyment of beauty? We know that the literary scholar becomes engrossed in matters of historical and biographical facts which divert his attention for the moment from the purely æsthetic appreciation of a poet's creative work, but we also know that, taken as a whole, the literary scholar enjoys a much wider æsthetic appreciation than the untaught; and indeed the interest in facts of literary history in their relations to, say, the poem in question, sometimes approximates to an element in a unified æsthetic attitude towards the poem.

In a similar way can we not say that Wordsworth's interest in the subjective aspect of his appreciation of the beautiful in nature is sometimes so closely connected with that appreciation of nature as to enrich it rather than to detract from it?

In both the cases, of course, the value (other than its æsthetic value) of the intellectual interest may well justify its cultivation, though to rely on this alone would be quite different from claiming that by psychologising we can enhance æsthetic enjoyment. But even admitting that momentarily any such psychologising is inconsistent with the purely æsthetic attitude or the attitude of literary criticism, the right line of argument seems to be that in the long run such an added interest will result in a wider cultivation of æsthetic enjoyment and the adding to the variety and so the permanence and predominance of æsthetic interests, apart from the possibility of its influence in the selection of objects for æsthetic appreciation and on the development of art.

It might have led to a more original contribution to æsthetics if Dr. Langfeld had developed this aspect of the subject more fully throughout

his book. He is largely content, however, to give a general survey of some leading psychological doctrines as to æsthetic appreciation and to discuss such characteristics or supposed characteristics of the æsthetic attitude as the following: detachment and isolation, the absence of utility and purpose, stimulation combined with repose, the feeling of unreality, psychological distance.

Still more fully is discussed the doctrine of empathy. And here, while Dr. Langfeld explictly guards against the assertion that actual sensations must be experienced in the empathic interpretation of laws, of movements in a picture, etc., his expositions here and elsewhere seem to stress unduly the influence of movement in mental process and to approach something like a behaviourist view that mind can be interpreted in terms of motor reaction. This tendency appears even in the discussion of "Attention as a Unifying Process," when, for example, he writes: "The attention to different musical compositions involves very different co-ordinations of emphatic responses; but since, normally, the very same muscle groups are employed, it is impossible to listen to two pieces of music simultaneously".

A good deal of recent experimental material very relevant to some of the problems discussed is ignored by Dr. Langfeld. The book, however, is written in a very clear style; fallacies are not at any time concealed by obscure expression as is sometimes the case. The work will serve as a useful introduction more especially to the study of the point of contact between psychological and pictorial art. Perhaps the most useful part of the book is the discussion on Unity (under Unity and Imagination and Illustration of Unity from the Fine Arts) in which Dr. Langfeld allows due recognition to the significance of the nature of attention in æsthetic appreciation.

C. W. VALENTINE.

The Elements of Social Justice. By L. T. HOBHOUSE. London: George Allen & Unwin, Ltd., 1922. Pp. 206.

Thirty years ago it looked as though 'Natural Rights' were coming to be regarded as having outlived their usefulness and were to sink into obscurity. Criticism was directed against them by writers as different as Huxley and Ritchie; and, though the critics may not have agreed with each other, they were at one in pointing out that some of these Rights were inconsistent, when pressed, with others, and that there were dangers in using so uncertain a guide as the conception of Rights appeared to be. The defenders of Natural Rights were reduced to arguing that the formula ought to be retained in default of something better. It is true that philosophers never gave up using the expression: but, as Prof. Hobhouse points out in this volume, they would have been more consistent if they had done so. Natural rights seemed to be employed by them either as a somewhat ambiguous substitute for political ideals, or as guiding conceptions which came in whenever the ideas of social good or human progress were too wide to give any help. Partly the term was retained as a concession to ordinary language. Aristotelians like Green and Ritchie would have felt uncomfortable if they had seemed to suggest that expressions which had inspired enthusiasm and had promoted progress could be laid on one side as though they had entirely lost their meaning. And it is impossible not to feel grateful to a writer like Prof. Hobhouse, whether he call himself an Aristotelian or not, who is willing to assume that such words as rights, liberty, or equality must be prepared to yield a useful meaning if they are carefully analysed, and to

take the trouble to examine them seriously in order to separate the valuable elements which, on the lowest estimate, they must contain. In part this book is to be regarded as applying principles which the author has already explained in *The Rational Good*. The several essays contained in it can no doubt be understood by themselves, as each of them endeavours to sift the meaning of some one conception which is in current use. But these examinations are conducted on a common principle. The advertisement to the present volume describes its object, rather strangely, as being "to show that social and political institutions are not ends in themselves". It is true that the first sentence of the book asserts this. But Prof. Hobhouse does not appear to prove this here: nor is he obliged to do so, for he has advanced arguments in support of that thesis before. But it does no doubt amount to an additional proof if it is shown that his theory of social good enables him to give an intelligible meaning to the conceptions which he discusses and to extract full value from them. It would be out of place to examine here the principles which are explained in *The Rational Good*. Those who do not know that work are provided by the author with a convenient summary in the first chapter of this volume. There follow discussions of rights and duties, liberty, justice and equality, the payment of service, property and economic organisation, social and personal factors in wealth, industrial organisation, and democracy. All of these are so carefully and patiently conducted, with so full a regard for all considerations which might be advanced, that it would require an amount of space equal to that occupied by the discussions themselves to make any adequate remarks on them. In two respects only does Prof. Hobhouse seem at times to lose his judicial attitude. He is apt to be impatient of the idealist philosophers, and he occasionally shows affinity for that belief in the wrongness of his country's actions which, while it may place the Englishman who adopts it on a moral and political level far above that occupied by his fellow-countryman who believes that his country is always right, is ultimately not much more worthy of a philosopher. Those who are able to accept Prof. Hobhouse's social principles will find their attitude strengthened in this volume: and those who have doubts will at least feel that he can give an account of the ideas which he discusses such as can win their sympathy, and that he does not avoid difficulties by a phrase or an evasion.

P. V. M. Benecke.

Bemerkungen über den Platonischen Dialog Parmenides. By Harald Höffding. (Bibliothek der Philosophie: 21 Band.) Berlin: L. Simion, 1921. Pp. 56.

A pamphlet by so distinguished an author as the veteran Höffding is always a welcome addition to philosophical literature. But I cannot see that the present *brochure* really throws any new light on its subject. The view is expressed that the structure of the *Parmenides* is so inartistic and the sophistry of some of the reasoning so gross that it is fair to conjecture that we are dealing with papers never intended for circulation but given to the world posthumously by the unwise admiration of disciples. I am afraid that this judgment means that Höffding, like many writers on Plato, inhibits his sense of humour when he opens that philosopher's works. Failure to recognise the presence of a peculiar mischievous humour has hindered the understanding of a great deal of Plato; it makes the *Parmenides* wholly unintelligible. Yet there is really no great mystery about the dialogue, and Plato himself has given us the key to it by the plain intimation that it is to be taken as an imitation of the method of Zeno

with the opponents of Parmenides, a method which he is careful to describe for us. Plato takes a number of objections to the doctrine of the "participation" of sensible things in εἴδη and states them with great force. The objections are not his own, and there is not the slightest reason to assume, as Höffding does, that he thought them really dangerous. In point of fact, they are all fallacious, but it is not Plato's game to tell us so. He leaves them where they are and turns on the disciples of the Eleatics from whom the objections come. "Socrates' theory leads to difficulties?" he says. "Well, take your own doctrine of the One, let it be subjected to a dialectic like your own, and see how you like *its* consequences." When one has once grasped the point that the whole thing is a subtle jest, a turning of the Megarian dialectic on the men of Megara, one is in a position to appreciate the structure of the dialogue for the masterpiece of art it really is. Höffding misses the fun, asks no questions about the address of the satire and so falls into the mistake of assuming both that Plato was perplexed by the paralogisms of the first part and was unaware that there is a great deal of "sophistry" in the second. He even makes the singular mistake of saying that the antithesis One—Many is badly chosen for Plato's purposes and that he would have done better to deal with that of Same—Other, making here a curious error of fact. He quotes *Parm.* 139d for the view that the φύσις of the One is identical with that of the Same. But he has omitted an οὐχ. Plato expressly says that the two things are *not* the same and gives an unanswerable reason for the distinction, *viz.*, that what is the "same as 2" is not 1 but 2.

A. E. Taylor.

Die Differentielle Psychologie in ihren methodischen Grundlagen. Von William Stern. Dritte Auflage. Leipzig: J. A. Barth, 1921. S. x + 546. M. 63; geb. M. 72.

This well-known work was first published in 1911. It was a comprehensive review of the researches which had been carried out upon the nature, variety, and significance of individual differences, and it contained an original contribution to its problems which was of great importance. For a considerable time now the volume has been out of print, and there was every justification for its republication. An attempt has been made to bring it up to date, by adding a survey of the development of the psychological study of individual differences since 1911, and a bibliography of recent work.

Both the survey and the bibliography might have been improved. The former, interesting as it is, is a rather summary and off-hand piece of work. It consists of three short sections, the first dealing with the significance of recent studies of individual differences from the point of view of general theoretical psychology, the second discussing some of the practical applications of psychological tests, and the third giving an account of developments in the methodology of the subject. In each section references are made to the most outstanding pieces of research in the field surveyed. A mere reference to large numbers of books and papers is not, however, of great value. A more reasoned discussion, and a real attempt at an appraisement of the works referred to should have been attempted.

The bibliography is fairly comprehensive, for it contains the titles of over 430 books and papers which have been published since 1911. Even so it is by no means complete. To take a single illustration, the section on statistics contains no reference to the important work of Prof. G. H. Thompson. And a glance at many other sections shows similar omissions

in regard to other branches of research. The point is, not that such a list should be complete, for that is practically impossible in a subject in which publications appear with such bewildering speed as is the case, for instance, with the modern investigations of "mental tests," but that the bibliography should be selective, and that short descriptive and critical notes should be added.

However *Die Differentielle Psychologie* remains a standard work, and its reappearance will, no doubt, be heartily welcomed. Though the additions are rather scanty, they may yet help to set new investigators at work along fruitful lines of enquiry.

F. C. B.

La Filosofia di Giorgio Berkeley (Metafisica e Gnoseologia). By Adolfo Levi. Turin, Bocca Bros., 1922. Pp. 102.

Mr. Levi has brought to his study of Berkeley the same wealth of knowledge of the literature of the whole subject which distinguishes his work on Plato. He rightly comments on the singular error of the average historian of philosophy who confines his attention to Berkeley's juvenile writings and contrives to fit them into his preconceived scheme as a mere half-way house between Locke and Hume. Mr. Levi's own work aims at showing the substantial "autonomy" of Berkeley's philosophical thought and tracing the steady and consistent line of development which it follows from the *Common-Place Book* right on to *Siris*. On the main point that Berkeley is not a "continuator of Locke," the best recent British and American critics would be pretty much in accord with Mr. Levi, and his conclusion could be further reinforced by the considerations recently adduced from America which go to show that Berkeley's criticism of Locke is mainly motived by the acceptance of Locke's doctrines by his own real enemies, the "minute philosophers," who treat the perceived world as phenomenal of an unperceived real world of Newtonian "corpuscles" and run the risk of making this Newtonian "matter" at least co-eternal with God. It is naturally welcome to Berkeley's countrymen to receive so admirable a study of him from Italy. If it is not presumptuous, I should like to express the wish that Mr. Levi would lay us under a further obligation by producing an equally independent study of Locke himself, one of the most generally misunderstood of philosophers.

A. E. T.

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H. Delacroix, *La Religion et la Foi*, Paris, F. Alcan, 1922, pp. xii, 462.

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L. Bloch, *Le Principe de la Relativité et la Théorie d'Einstein*, Paris, Gauthier-Villars et Cie, 1922, pp. 42.

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E. Dupréel, *La Légende Socratique et les Sources de Platon*, Brussels, R. Sand, 1922, pp. 450.

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R. Ardigò, *Scritti Vari*, collected and arranged by G. Marchesini, Florence, F. Le Monnier, pp. 301.

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F. C. Prescott, *The Poetic Mind*, New York, The Macmillan Co., 1922, pp. xx, 308.
The Labour Movement and the Hospital Crisis, London, The Trades Union Congress and the Labour Party, pp. 20.
A. Watkins, *Early British Trackways, Moats, Mounds, Camps, and Sites*, Hereford, The Watkins Meter Co., 1922, pp. 40.

VIII.—PHILOSOPHICAL PERIODICALS.

British Journal of Psychology. Vol. xii., Part i. June, 1921. In "Instinctive Behaviour and Enjoyment" **C. Lloyd Morgan** discusses the nature of instinctive actions and their dependence on heredity. The term instinctive is used analytically as to that element of a complex process which is unlearnt. The acquisition of psychical data in the process of learning is only "intelligent" when such acquisition involves some seeking and choosing. The mere "provision and psychical registration of data through unlearnt behaviour does not itself imply intelligent processes." The instinctive enjoyment which is correlated with instinctive behaviour "is accompaniment and accompaniment only, without guiding efficacy, though it provides the data for conscious guidance in the life of fuller and further development".

In discussing the physiological correlate of instinctive process the author surmises that "intelligent integration may have its unlearnt form dependent on the inherited synaptic pattern in the cortex". In a concluding dialogue Lloyd Morgan foreshadows his forthcoming restatement of some of Spinoza's doctrines, and in particular refers to one corollary of Spinoza's view that there is no interaction between instinctive behaviour as a mode within the attribute of "extension," and instinctive enjoyment, as a mode within the attribute of "thought" or of consciousness.

F. Aveling and **H. L. Hargreaves**, in "Suggestibility with and without Prestige in Children," give an account of experiments in two schools with both boys and girls. The tests included the suggestion of hand rigidity, of hand levitation, and of sense of warmth, of length of lines and of incorrect statements about pictures seen. The following conclusions were reached: In cases of suggestion, under conditions in which the influence of personal prestige was prominent, a negative response owing to the development of contra-suggestion is frequent. Consequently subjects tend to be classified into two sharply divided groups, the suggestible and the non-suggestible (or contra-suggestible). In cases of impersonal suggestion contra-suggestibility was not so frequently aroused, and the distribution was approximately normal, the majority of the subjects being moderately suggestible. There was evidence which pointed to a general factor of Suggestibility complicated by group factors. General suggestibility was greatly modified by the specific conditions and elements of the whole situation, which vary in individual cases according to experience of it and knowledge about it. There was no ascertained tendency for suggestibility to go with other "general" factors such as General Intelligence, Perseveration, Oscillation, or Motor Dexterity. There was a small correlation between it and Common Sense regarded as consisting largely of affective and conative elements; but none if Common Sense was considered as a purely cognitive quality. **B. Muscio** in an article "Is a Fatigue Test possible?" criticises the current view of fatigue as "reduced capacity for work". The term work is too narrow (activity is suggested as a substitute), yet is not specific enough; does it mean capacity for the same kind of work or for all work? Further it takes no

account of complication factors such as varying incentives to work, the effect of irrelevant distractions, etc. The writer suggests the abolition of the word fatigue from scientific discussion and the definition of such problems in the form of the effect of different kinds and amounts of work (activity) on mental and physiological functions.

Other articles are as follows :—

Rodrigo Lavin, "A Preliminary Study of the Reproduction of Hand Movements".

Edward Bullough, "Recent Work in Experimental Æsthetics".

G. Udny Yule, "Critical Notice of William Brown and Godfrey H. Thomson's 'The Essentials of Mental Measurement'".

JOURNAL OF PHILOSOPHY. xix., 3. **C. H. Toll.** 'On the Method of Metaphysics.' [All metaphysics start from the antithesis of the given and the real. The former should have nothing hypothetical about it, but in approaching the latter hypotheses must be used, and it must not be assumed that only one of these will be tenable. It is held also that "some actual interpreting of the data is itself part of the data". Finally metaphysics should "give some recognition to the non-logical features by which some hypotheses acquire a weighted value for us" and are selected on moral or æsthetic grounds.] **B. H. Bode.** 'Critical Realism.' [Argues that the authors of the book reviewed are not really agreed and concludes that "Critical Realism provides no content for the notion of mental states; which is perhaps the reason why it is not scandalised by the suggestion of unconscious mental states. If we stick consistently to the doctrine that the given consists of essences, there can be no room for existences of any sort, and both external objects and mental states go by the board."] xix., 4. **K. Dunlap.** 'The Identity of Instinct and Habit.' [Points out that "the instincts are teleological groupings of activities, not psychological groupings," and are based on the purposes of the classifier and not on those of the reacting animal. In the end there is "no way of distinguishing usefully between instinct and habit. All reactions are definite responses to definite stimulus patterns, and the exact character of the response is determined in every case by the inherited constitution of the organism *and* the stimulus pattern. All reactions are instinctive and all are acquired. If we consider instinct, we find it to be the form and method of habit-formation: if we consider habit we find it to be the way in which instinct exhibits itself."] **J. R. Geiger.** 'Must we give up Instincts in Psychology?' [Maintains that so long as "the primary condition of significant activity is internal rather than external," the term 'instinct' is justified.] **W. S. Hunter.** 'The Modification of Instinct.' [Argues that "associations formed prior to the appearance of an instinct" may modify it when it appears, without its being therefore nothing but a habit.] xix., 5. **S. C. Pepper.** 'A Suggestion Regarding Esthetics.' [Three approaches to æsthetics have been tried, the critical, the philosophical, the psychological; none has been a success. But it is not necessary that the foundations of a science must be firm before it gets to work. All a science needs to start with is a working unit, *i.e.*, a working hypothesis. The 'liking a thing for itself' as opposed to valuing it as a means to something else may suffice to get æsthetics going.] **W. T. Bush.** 'Æsthetic Values and their Interpretation.' [Refuses to separate beauty and use as sharply as the previous paper, and suggests that beauty refers to present, use to future, value.] **A. L. Hammond.** 'Immediate Inference and the Distribution of Terms.' [Denies that the exceptive proposition is adequately rendered by *All non-S is P*, and the exclusive by *All P is S*.]

IX.—NOTES.

M. BLONDEL'S "L'ACTION".

To the Editor of "MIND".

DEAR SIR,

I do not think Prof. Wildon Carr in his review of the Italian Translation of M. Blondel's L'Action can have seen a letter of M. Blondel to the March, 1921, number of *La Nouvelle Journée*, entitled Un Rapt. Prof. Wildon Carr says of the Italian Translation, that it was made "against the author's wish, though not, we understand, actually in defiance of his authority". M. Blondel in his letter calls the translation "un rapt," and after a vigorous protest—"il a suffi de l'audace de deux étrangers pour que, en dépit des précautions les plus réfléchies et contre toute vraisemblance, un rapt soit commis,"—he quotes his letter to the Editor and Translator of L'Action; "Je proteste absolument contre l'abus matériel et moral qui est fait de mon œuvre et de mon nom. Au mépris de mes droits les plus certains et de mes intentions les plus avérées, vous usurpez une 'proprieté littéraire,' qui ne vous appartient à aucun titre."

Prof. Wildon Carr also writes that L'Action "unfortunately aroused such violent animosity in Catholic circles that the author withdrew it, and so effectually that copies are now excessively rare (the Bodleian is believed to be the only public library to possess one)". M. Blondel explicitly denies this: Il est dit que j'ai rétiré mon livre du commerce. Non: les 750 exemplaires du tirage ont été rapidement épuisés, rien de plus. Le traducteur donne en outre à entendre que c'est la crainte des censures qui a empêché une réédition. Non: c'est mon mécontement de moi-même. . . . Copies of L'Action are rare, as the quotation given explains, but any reader at Dr. Williams' Library, for instance, could obtain one.

Lastly, I think it should be pointed out that M. Blondel would not allow of the association of his name with those of Bergson, Croce and Gentile. His aims are quite different. He has emphasised the fundamental differences between Bergson and himself, between Pragmatism and L'Action, and derives his inspiration from Leibniz and Ollé-Laprune.

M. C. D'ARCY.

MR. D'ARCY is entirely right and I must express my sincere regret for the error into which I was led by an Italian friend of the translator at the time of the publication of the translation last summer.

The association of M. Blondel's name with Bergson, Croce, and Gentile was not intended to convey the idea that their aims were identical. My reference was not personal at all but meant only to indicate a tendency of doctrines in themselves totally diverse.

H. WILDON CARR.

INTUITION OF REALITY.

SIR,

Mr. Leo Stein relates in the April number of MIND an experience which he believes to be similar to my own experience of an ineradicable certainty of the immortality, pre-existence and bisexuality of the Self. I am afraid his vision which gave him the explanation of rest and motion was of a totally different kind. It did not refer to his own innermost Self, and did not give him a permanent absolute conviction, with many practical consequences in everyday life, as was the case with me. The fact that he could attempt later to explain it away by the very unconvincing image of a balloon which may burst and disappear, proves clearly that he did not reach absolute reality. I quite agree with him that if he had the impression that he was whatever he thought, this was not sound knowledge. I know myself to be myself, and different from everybody else. Such a knowledge remains unshaken for ever, and cannot be explained away as an illusion. I trust that some readers of MIND have experienced the birth of such a conviction which cannot be shaken by anything. Their testimony would confirm, but could not strengthen, my own conviction that I am a true Being, which cannot be destroyed by Death and has not been created by conception and birth. I remember a very long conversation with William James on this subject in 1899 and learn that in his published correspondence a letter from him to Miss Frances R. Morse of 17th September, 1899, is printed in which he writes with reference to this meeting at Bad Nauheim :—

"He takes in dead seriousness what most people admit, but only half believe, *viz.*, that we are *Souls*, that souls are immortal and agents of the world's destinies, and that the chief concern of a Soul is to get ahead by the help of other souls with whom it can establish confidential relations . . . abstractly his scheme is divine, but there is something on which I can't yet lay my defining finger that makes one feel that there is some need of the corrective and critical and arresting judgment in his manner of carrying it out. These Slavs seem to be the great radical livers-out of their theories."

William James was right in thinking that there was something wrong in my way of carrying out the consequences of my conviction. I believed that everybody can go through the same experience and I was wrong. Since then I have learnt that such an experience is rare and that it cannot be produced by the influence of one man on another. It must come unsought and not by some kind of suggestion, if it is to leave lasting results.

Yours sincerely,

W. LUTOSLAWSKI.

SIR HENRY JONES, C.H., LL.D., D.LITT., F.B.A., 1852-1922.

WITH the death of Sir Henry Jones, on 4th February, 1922, philosophy loses one of the band of brilliant men who studied philosophy under Caird in Glasgow. Sir Henry Jones, the son of a shoemaker, fought his way through poverty from shoemaking to the University, with no advantages but those due to an indomitable spirit, and the proud and loving help of the village community in which he was brought up. He occupied the Chair of Philosophy and Political Economy in Bangor, North Wales, and the Chair of Logic in St. Andrews ; and in 1894 was appointed as Caird's successor to the Chair of Moral Philosophy in Glasgow. His writings include *Browning as a Philosophical and Religious Teacher*

(1891); *The Philosophy of Lotze* (1895); *Social Responsibilities* (1905); *Idealism as a Practical Creed* (1909), delivered in the University of Sydney, New South Wales; *Social Powers* (1913); *The Principles of Citizenship* (1919); *A Faith that Enquires* (1922), Gifford Lectures delivered in the University of Glasgow, 1920-1921. With Prof. J. H. Muirhead he wrote the *Life of Edward Caird* (1922).

Philosophy in his hands was something vital. He drove it unceasingly on to the practical issues of life, and brought the practical issues back to ultimate principles of metaphysics. Plato and Aristotle, Spinoza and Kant and Hegel, and with them, Nettleship and Green, Caird and Wallace, were his favourite philosophers: for in them he felt a centrality of outlook, a rightness of spirit, which seemed to him lacking in Descartes or Leibniz, Locke or Hume. His books show how much his thought and his style owed to the Bible and to the great poets. His weightiest book is his *Lotze*, but he did not complete the promised sequel, largely, I believe, because he felt that the investigation would not be as valuable as a more direct and positive exposition of the conclusions to which a criticism of Lotze would have led.

This attitude was due to the intensity of his feeling that a true philosophy is so urgent a matter for life that you cannot afford to delay too long over positions which have already been discovered to rest on erroneous principles. To follow out in detail the consequences of principles which rest on wrong assumptions is, he felt, to fritter away energy which it is a duty to put to more fruitful uses. He taught his students to endeavour to bring to light the hidden assumptions on which any philosophy rests, and to concentrate on them, because they are the important part of the philosophy. When you have learned, he insisted, go forward and leave the mistakes behind. The task appeared to him less tortuous and complex than it appeared to some of his men; where he was sure, they were groping slowly and in uncertainty; but they could not fail to be penetrated by his spirit of the seriousness of the task undertaken by philosophy.

He was a keen fighter and a great friend. There was nothing half-hearted or moderate about him. True virtue, he insisted, can let itself go, fully and absolutely, for it is infinite and (it was a central thought) carries its own limits within it as a part of itself. And he pointed to the life of Christ.

This big-hearted outspoken optimism was, I think, the source of the great personal influence he exerted. It was the source, too, of the somewhat mixed feelings some of his students had for him. When you felt he was going rather rapidly to his conclusions, putting aside with a gesture obstacles that you felt were stronger than he would allow, he would bear down on you and the obstacle with his scorn, reducing you to silence. And then, as if he saw you felt he was bullying, he would pull himself up and try to make amends by mildness.

His Gifford Lectures were completed during a last gallant struggle against the disease which he had fought so cheerfully for many years. He lost his much loved younger son in the war. It was given to him to enact in his own person the tragedy that, in his younger and vigorous days, had always seemed to him to be the most sublime expression of humanity's faith, and to be able himself, in his own tragedy, to keep his faith undimmed. "Though He slay me, yet will I trust Him," he could still say.

LEONARD RUSSELL.

THE LATE MISS E. E. CONSTANCE JONES.

Miss Jones rendered services of very high value and importance to education as Lecturer in Logic at Gerton, and subsequently as mistress of that College. She was also endeared to a large circle of friends and pupils by her rare and admirable personal character. It would require much space to do justice to her memory from these points of view. What I am here especially concerned with is her published work in Philosophy.

Miss Jones was keenly interested in all vital philosophical questions and she has written well on Ethics and Metaphysics. Logic, however, was her special subject, and it is only here that she would herself have made any claim to originality. The logical topics with which she was chiefly concerned were the import and interpretation of propositions. She did good service in insisting on the distinction between interpretation from the point of view of the speaker and that of the hearer. But her main contribution, in her own view and also in mine, is to be found in her general view of import.[1] On the threshold of Logic we are confronted by the question, What is a proposition? and this, as Miss Jones maintained, is identical with the question, "What is a significant assertion?" There is significance so far and only so far as thought is carried forward beyond its point of departure to something in some way different from this. Thus the verbal formula A is A is totally insignificant. On the other hand, mere difference is not enough to give significance. In asserting a proposition we always assert identity: to say that A is B is to say that what we distinguish as being A, is identical with something that is B. This cannot, of course, mean that differences as such are identical. Are we then to say, with many logicians, that what is asserted is "identity in difference"? But how can this be, if the differences themselves are not identical? Miss Jones holds that we ought to speak of differences within an identity rather than of identity in difference. In ordinary categorical propositions we are dealing with a complex unity, comprehending and connecting with each other, on the one hand, a character specifying this complex as the subject concerning which an assertion is made, on the other hand, a character asserted as predicate. The copula is the complex unity itself. Miss Jones further identifies the inclusive whole with "denotation" and the diverse characters which it includes with "intension". Every categorical affirmation asserts diversity of intension as included within a denotational unity. In *S is P*, the denotation of S and P is the same though S-ness and P-ness are diverse. As a general formula for categoricals this seems fairly satisfactory, though not entirely free from difficulty. But Miss Jones would also extend it to hypothetical and disjunctive propositions. Though she defends this position with much acuteness and ingenuity, it can hardly be said that her treatment of the question is adequate. Granting that in non-categoricals as in categoricals what is asserted is always the connexion of differences within a unity; it is not clear that this can be adequately described as a denotational unity, when the meaning of the word denotation is determined merely by the current use of it in logical text-book. Further analysis and reconstruction seem to be required. However this may be, Miss Jones was, I think, right in insisting that some explicit formula defining the most general conditions of significant assertion ought to be made fundamental in works on Logic.

[1] Most definitely formulated in her little book *A New Law of Thought and Its Logical Bearings*, which was very appreciatively reviewed by Dr. Schiller, Mind, N S., vol. xxi., p. 246. *Cf.*, *Symposium in Aristot. Soc. Proceedings*, 1914-1915, p. 353.

I have dwelt on this topic, because Miss Jones herself would have wished me to do so. Her work on other subjects than Logic, though highly competent, was expository and critical rather than constructive. In Ethics she has given a very accurate and careful account of Sidgwick's utilitarianism and an able defence of it against its critics.[1] She showed her interest in Metaphysics by her admirably accurate and lucid translation of Lotze's Microcosmus. I may also refer to an article on "Dr. Ward's Refutation of Dualism" as a good sample of her power of exposition and sympathetic appreciation.[2]

No mere reference to her published work will do justice to the service rendered by Miss Jones to philosophy within her own circle of friends and colleagues. In conversation and discussion she was in a high degree helpful and stimulating, owing to her keen and unfailing interest in philosophical questions, her candour and straight-forward simplicity, and her remarkable flashes of insight.

G. F. Stout.

SOCIETAS SPINOZANA.

An international society with this title and having its headquarters at The Hague was founded in 1920 in order to further the study of Spinoza's philosophy. With this object it proposes, among other things, to publish annually a journal, to be called *Chronicon Spinozanum*, containing articles, in various languages, bearing on Spinoza's teaching and life; and the first number of this journal is now ready. The editors are H. Höffding, W. Meyer, Sir F. Pollock, L. Brunschvieg and C. Gebhardt. The journal will not be on sale to the general public, but members of the society will receive it free of charge; and applications for membership are invited. Members must be approved by the Governing Body of the society and must pay an annual subscription of 10s. Application may be made to Mr. L. Roth, Exeter College, Oxford.

[1] *Proceedings of Aristot. Society*, 1903-1905.
[2] Mind, N.S., vol. ix.

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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY

I.—PROF. ALEXANDER'S THEORY OF SENSE PERCEPTION.[1,2]

BY G. F. STOUT.

THE PROBLEM.

THERE is a system of things and events which exist, endure, change and interact independently of the conditions which make them perceptible to us through sense experience. This we may call the physical world. It contains our own bodies and also things external to our bodies which we may call external objects. In agreement with Mr. Alexander and also with common sense and science, I take the existence of the physical world for granted. We are concerned only with the question how we know it in sense perception.

Ordinary sense perception includes much knowledge which is due to previous perceptions, as when we say that we hear a footstep on the stair or a horse trotting. But there is also in all sense perception a factor that cannot be accounted for in this way. There is a modification of the content of sense experience which occurs independently of any reinstatement from the past. This factor is present alike in normal perception and in dreams, hallucinations and illusions. When a drunkard seems to see pink rats, he is really aware of an actual sense-apparition such as would be normally experienced if there were really pink rats before his eyes.

[1] Contributed to the Joint Session of the Mind Association and Aristotelian Society at Manchester, July 14th-16th, 1922.

[2] Throughout this paper I have criticised Mr. Alexander's theory of knowledge in an unsparing way. I feel bound, therefore, to say once for all, that I immensely admire the ability and thoroughness with which he has attempted to maintain what I regard as a quite untenable doctrine. No one, I think, could have performed better the task which he has undertaken; and we owe him a great debt of gratitude for putting us in an advantageous position for judging a view which must be either accepted or rejected before further advance can be made.

These contents of immediate sense experience must not be confused with our knowing about them. We recognise and distinguish them; we attend to them, like or dislike them, desire their presence or absence. But they are not themselves recognitions or distinctions, likings or dislikings or desires.

They are or may be objects for a subject but are not themselves subjective. We have not a right to regard them as mental in any sense in which what is mental is contrasted with what is material. In agreement with Alexander, I should myself maintain that in the antithesis of matter and mind they fall on the side of matter and not of mind.

I use the term sensum rather than sensation because "sensation" almost inevitably suggests something distinctively mental, and may lead to confusion between knowing and experiencing on the one hand, and what we know or experience on the other. It is, in fact, open to the same objection as Berkeley's use of the word "idea" which gave rise to the gravest misunderstanding of his real meaning. Instead of sensation the term "sense-datum" has been employed by recent writers. But this also is a question-begging word. It suggests that what we originally know in sense perception is merely the sense apparition as immediately experienced to the exclusion of anything beyond it. This assumption seems to be a mere superstition, which would make knowledge of the physical world impossible. I, therefore, prefer the term "sensum" which is also used by Mr. Alexander. I prefer it because it does not prejudge the view that though knowledge is limited by immediate experience it is not even originally limited to immediate experience.

It is here that my disagreement with Mr. Alexander begins. He seems to hold that sense perception is primarily confined to sensa. His peculiar theory of sense knowledge is an attempt to show how on this assumption, we can, none the less, know by way of sense a world of physical things and events.

Mr. Alexander's General Theory.

According to Alexander, all knowledge is the direct revelation to the knowing mind of something which exists independently of being known. This is a position which I myself accept. I disagree only with his application of it to sensa and images. Here we are concerned especially with sensa. He asserts and I deny that sensa are identical with perceived features of physical existence.

A convenient way of approaching the question is by considering the connexion of sensa with those processes in the percipient's body without which they are not experienced.

It is, I take it, generally admitted that there is no variation in the sensa without corresponding variations in the bodily conditions, and no variation in relevant bodily conditions without corresponding variations in the sensa. Factors external to the body make no difference to the sensum, unless and so far as they affect the sense organ, and processes in the sense organ make no difference unless and so far as they affect the nervous system.

Facts of this sort naturally point to the view that sensa have no existence apart from the percipient's organism, and that what occurs outside the nervous system makes no difference to them, except in so far as it makes a difference to this. The sensum can no more be identical with all or any of the external factors concerned in the production of the physiological process than this process itself can be identical with its external conditions.

This is the natural view suggested *primâ facie* by the facts. But Mr. Alexander thinks that the facts can be otherwise construed, and he holds that they must be otherwise construed if we are to give any tenable account of our knowledge of the physical world. His own theory may be called the penny-in-the-slot theory. According to him, when we perceive objects as external to our sense organs the sensum is itself a feature of the external object, having an existence and nature of its own, quite independent of its entrance into our sense experience, whereby it becomes a sensum. The physical and physiological conditions of perception simply serve to unveil it. They put a penny in the slot and so, as it were, remove a screen which would otherwise have hidden it from the percipient.

In looking at a sheet of white paper, I experience a sensum having a certain shape and colour quality. Alexander holds that under normal conditions, this very shape and quality, as I immediately experience them, pre-existed in the paper before I saw it, and continue to exist when I cease to see it. They exist in the paper whether anyone sees it or not, and might have so existed if there had been no eyes or brains in the world. The passage of reflected light from the paper to the eye and the ensuing processes in the retina and brain determine only the appearing of the sense apparition. They in no way determine the existence or nature of that which is thus revealed. In this example there is a continuous train of processes constituting what may be called a bridge between the perceived physical existence at one end and at the other the neural occurrences which are more directly connected with the relevant sense experience. Further, the bridging series of events is causally initiated from the side of

the thing perceived and not from the side of the subject. What occurs to the percipient's brain is only a terminal effect. But this is not what happens in ideal revivals, dreams, illusions and hallucinations. When for instance, we look at a grey speck on a red ground and, owing to contrast, experience a green sensum instead of a grey one, what is revealed as a sensum is some particular green existing in a place and at a time other than the place and time of the grey speck. The green depends on the reflexion of light from the surface of some independently existing thing. But the reflected light is not propagated to the eyes of the percipient. How then is the connexion established when the green is sensibly revealed to him? Mr. Alexander answers that the process which unveils the sensum may be initiated in two ways. In veridical perception, it is initiated from the side of the perceived object. In dreams, illusions, hallucinations and also in ideal revival, it is initiated from the side of the subject. There is simply an inversion of what is otherwise, in all relevant respects, the same train of events.[1]

Mr. Alexander does not anywhere attempt to deny that sense apparitions come and go and vary in strict correspondence with events happening in the sense organs and nervous system just as if, not only their appearance, but their nature and existence were inseparable from such bodily conditions. From this point of view, therefore, all that he can be logically justified in asserting is that his own revelation theory is a possible alternative which may also be made to fit the facts. Instead of proceeding in this way, he presses his own dictum upon us as that which we must accept to the exclusion of any other. Before proceeding to detailed criticism, it will be useful to consider the motives which have led him to take up a position so uncompromising.

The Motives which Underlie his Theory.

He certainly does not prefer his own theory on the ground that it is simpler. On the contrary, he frankly admits that it is much more complicated and difficult. "I cannot," he says, "help confessing how much simpler it would be, and how much laborious explanation it would save, if only it were true that our intuitions and sensations were mental, as is commonly supposed, and how easy it is compared with our procedure to refer" their "variations in part to the mind or its body".[2] His reason for refusing to follow this easy road is that it leads to destruction. "We should be living

[1] I shall try to show at the close of this paper that there is no such initiation from the side of the subject.

[2] *Space, Time, and Deity*, vol. ii., p. 199.

in a world of sensations which would be hallucinations . . .; some would be veridical and some not. But we could only discriminate the veridical ones by means of sensation, that is, by other hallucinations. For it is of no use to urge that our appearances are partly determined by the thing and partly by our bodies. How shall we know what part is due to things except through observation, for which, in turn, we are dependent in part upon our bodies? We are reduced to a world of consistent hallucination."[1] In this passage Alexander treats as equivalent two entirely distinct propositions: (1) that sensa and images are mental, and (2) that they are directly correlated in their existence and nature with occurrences in the body of the percipient. I admit and maintain that if they were not material but mental we could not know anything about a material world. We should not even have the thought of such a world so as to be able to raise the question whether it exists or not. If, through sense perception, we are to know about the moon as it exists independently of our sensitive organism, the sensum which we have in seeing it must be continuous in existence with it, and therefore fundamentally homogeneous with it in its general nature. The contents of sense experience and physical facts must belong to the same order of being and be contained within the unity of the same continuous whole. Just as, within the sense experience of each individual, his several sensa are variable modifications of one presentation continuum, so the several presentation continua of each of us are all continued into and are of a piece with a wider continuum which comprehends and connects them—comprehends and connects them as the physical universe comprehends and connects your body and mine. It will be said that even if, in fact, sensa are thus prolonged into an existence beyond themselves, yet, since this existence is not immediately experienced, we can never come to know that it exists or of what nature it is. It is of vital importance to note at the outset that this supposed difficulty arises from the assumption that in sense knowledge all that we know primarily and immediately is what from time to time we immediately experience as a sensum. On this basis it is cogently argued that if we start merely with these immediate sensa, there is no assignable way of passing beyond them. Hence, if they are not themselves features of the physical world existing apart from the conditions under which they appear to us, it is impossible that we should ever come to know, or even have any thought of physical objects at all.

[1] *Space, Time, and Deity*, vol. ii., p. 199.

As Dr. Hutcheson Stirling puts it: "How can the scratch know of the thorn?" Granting the initial assumption, this reasoning seems incontrovertible. But if we concede the initial assumption, I do not see how Alexander's theory of perception can remove the resulting difficulty. Whether sensa are or are not features of the world existing apart from our sense organs and nervous system, they form at any rate only a vanishingly small fragment of this world as known to common sense in its spatial and temporal immensity, and its microscopic complexity. If this tiny bit is all that is primarily known how are we to pass from it to a knowledge of the rest? Further, even the given fragment lacks the internal coherence of the material world. Sensa, considered merely as they occur within individual experience, have no systematic order according to general rules, such as makes possible our daily lives. Berkeley, Mill, and Mr. Russell, in order to obtain such an order, have to posit, besides actual sensa, a vast system of possibilities of sensation, conceived as existing, persisting, changing, and mutually determining each other as if they were not mere possibilities but actual existences. But if we start purely and merely from sensa as they are actually sensed, and images as they are actually imaged, we cannot even reach such a system of possibilities: and if we could, we should not be able to define what the system is without presupposing a system of actual existences other than the sensa themselves, on which it depends—including our own bodies and the things around us, near and remote. If we grant to Mr. Alexander that sensa are merely disclosures within our experience of independently existing features of the physical world, and that therefore they cannot be hallucinations, yet if these sensa are all that we know, they cannot for us constitute a world.

But does Mr. Alexander really assume that our knowledge is primarily confined to the contents of immediate experience? The answer is that sometimes he does and sometimes he does not. The term "experience" is loose and ambiguous; and Mr. Alexander seems to pass from one meaning of it to another without noting the difference. Sometimes, the word is used for all knowledge as dependent on experience, as having its source in experience, as limited and conditioned by the limitations and conditions of experience. Sometimes it is used for the experience itself in which knowledge has its source, and by which it is conditioned and therefore limited. A dentist's knowledge that his patient is feeling toothache doubtless has its *source* in experience in the narrower sense of the word. What is thus known may

therefore be said to come within the range of his experience —in the wider sense. But, in the narrower sense, he certainly does not experience his patient's toothache. He can experience only his own toothache. He can know about his patient's pain; but he cannot, as Mr. Russell would say, be immediately acquainted with it. To avoid the ambiguity, I am in the habit of calling experience in the narrower sense, *immediate* experience. But Mr. Alexander does not attempt to avoid the ambiguity. It continually brings grist to his mill and alone makes his theory of knowledge seem plausible.

This fundamental confusion is found even in his general account of primary sense perception. Primarily, according to him, what is experienced is the sensum, and the sensum is a feature of the physical world existing quite independently of the conditions under which we experience it—existing before and continuing to exist after its appearance to us. But besides this he always assumes, tacitly or explicitly, not only that this independent existence is a fact, but that the fact is immediately known in sense-knowledge. I grant that if it is to be known at all, it must be immediately known.[1] But it does not follow that what is immediately known must be immediately experienced. How can we immediately experience the fact that something existed before it was immediately experienced and will exist after it has ceased to be so, and that its existence is independent of its occurrence as a sense apparition? How can such facts be immediately experienced as the sensum itself is? If knowledge of this sort is to be called experience, it can be so only in the wider and looser application of the word. It is, of course, open to Mr. Alexander to say that what I have called the wider and looser application is the only one that is important, and that the distinction between what we immediately experience and what we know *through* experience makes no difference to his account of the way in which we know the external world. But if he proceeds on this principle, he ought to do so consistently. He has no right to ignore a distinction in working out his own views, and also to use this very distinction as a weapon against those who disagree with him. Yet this is precisely what he does, as may be shown by a further quotation from the passage to which I have already referred. After dismissing other alternatives which might remain open, if his own theory of perception is rejected, he proceeds as follows: "Or we may suppose that thought informs us of a

[1] Immediate knowledge is here contrasted with *inference*. There is a fundamental sense in which all knowledge, including what is inferential, is immediate.

world of things to which our appearances are a guide. But I do not know how that thought could have experience of its object or what sort of an object it could be; and indeed the real world would remain in this way an unknown."[1] Now, when Mr. Alexander speaks in this way, he is using the word "experience" in the narrower application as meaning immediate experience to the exclusion of any thought of what is not immediately experienced. His position is that what is not thus experienced cannot be known at all. But this distinction is, for him, only a stick to beat a dog with. In working out his own theories, he ignores it or denies it. For him, the experience which is identical with knowledge of a sensum, includes the knowledge of that sensum as existing independently of its appearance to us. But it is only the apparition as such which can be immediately experienced, not its existence independent of its appearance. Similarly, he takes for granted not only that we can experience the same thing at different moments, but that we recognise it as being the same at the different moments. Again, he would say that our knowledge of other minds is experience. But he can hardly say that when I know that some one else has feelings and sensations his feelings are literally identical with my feelings and that his sensing of sensa is literally identical with my sensing of sensa. When, therefore, in the passage quoted, he says, "I do not know how that thought which informs us of a world of things could have experience of its object, or what sort of an object it would be," the reply is obvious. In the wider meaning of "experience," which Alexander himself freely uses, and cannot help using, experience includes thought, which is not experience in the narrower sense. From this point of view, the thought itself *is* experience of the object, and the thought itself immediately reveals "what sort of an object" it is.

My Own Position.

I have now attempted to state, in general, and also to criticise, in general, Mr. Alexander's account of sense perception. I have yet to consider, in detail, the way in which he attempts to reconcile his fundamental doctrine that the sensum is simply identical with an independent physical existence, with the fact, which he like others is bound to recognise, that sensa vary in manifold ways without corresponding variations in what we take ourselves to see or feel

[1] *Space, Time, and Deity*, vol. ii., p. 200.

when we experience them. But before entering on this topic, it will conduce to clearness if I give a very brief sketch of my own view of the way in which we know the material world.

First let me say that it seems to me the most arbitrary dogmatism for any one to attempt to determine *a priori* what is and what is not capable of being known. If we consider the concept of knowledge in general, apart from the special circumstances of this or that individual knower, there is no reason why it should not be coextensive with all being. There is nothing to confine it to this or that part of the universe, or to anything short of the whole in its unity and in its detail. That things are known is as much an inexplicable fact as that they exist. To ask how anything can be known is like asking how anything can exist. Both are wonderful facts, but it is no use wondering at them. We must take them as we find them. When, therefore, we turn to consider finite individuals, we must assume that their knowledge is limited, not because it is knowledge, but because they are finite. The problem is not—'How can I know anything?' but rather 'How is it that I do not know everything?' What is to be accounted for is not knowledge but ignorance and error and beliefs that may or may not be true.

It is clear that at least one fundamental reason of the limitation of knowledge in finite individuals is the limitation of their immediate experience, owing to its dependence on what takes place in their finite bodies. But, as I have already insisted, if we assume that what we know is not only limited by immediate experience but primarily confined to immediate experience, we cut off all possibility of knowing anything beyond this. Setting aside this alternative, what are we to substitute for it? We may find a clue by taking into account the omnipresent fact that, in a very important sense, knowledge is *not* limited. It is not possible to fix on this or that partial feature or aspect of the universe and assert that we know this *only*, without, in knowing it, also knowing something beyond it and connected with it in some sort of unity. We cannot, so to speak, draw a chalk line circumscribing what we know and dividing it absolutely from what we do not know. The special items which we regard as known to us always come before us in questionable shape. They are or may be apprehended as essentially incomplete, and so raise questions concerning what is required to complete them. And a question always includes some notion of the general nature of its answer. In wanting to know something, we must know, however indefinitely, what it is that we want to know. Thus, what we call ignorance is really

diluted knowledge. We know what we are ignorant of as being unknown and as connected with what we know. There is no reason why this principle should not hold for the first beginning of our knowledge of the material world as well as for its subsequent stages; and I therefore assume that in primary sense knowledge more is immediately known than is immediately experienced. More precisely, I proceed on the assumption that the whole complex content of our sense experience and each of its several discernible parts are primarily apprehended as continued into a whole which transcends and includes them.[1] The unity of the whole is apprehended as a continuation of the unity of that fragment of it which is immediately experienced. Hence what is not experienced, inasmuch as it is immediately known as being of a piece with what is experienced, must be from the outset apprehended as homogeneous with it in those general respects without which the continuous connexion cannot be thought. These will include those fundamental features on which the unity and continuity of our own presentation continuum depends—extension, temporal succession and change, degree of intensity, and, in general, what Mr. Alexander would call categorial characters.

For each individual the material world has two parts, though it is only in critical reflexion that he comes explicitly to distinguish them. There is, on the one hand, his own sensa, and, on the other, what we may call the physical existence which is not immediately experienced by him though he has immediate knowledge of it in knowing his own sense apparitions. The unity of his own presentation-continuum means for him a corresponding unity in the physical world. In knowing distinctions and relations between his own sensa, in knowing their changes and variations, he knows corresponding distinctions and relations in the domain of physical existence.

This may seem a large assumption. But, of itself, it will not take us far. It leaves us still on the threshold of our problem. Taken by itself it would make the realm of physical existence, as far as we are concerned, merely an idle duplicate of the content of sense experience. In order to account for our knowledge of external objects, we have still to answer two questions: (1) How is it that variations are constantly occurring in the content of sense experience

[1] What Dr. Ward calls the 'projection of the self' seems to me to be equally primary and inseparable from this projection of the presentation continuum. But for the purpose of this paper I may neglect this aspect of the question.

which do not imply corresponding variations in the external objects which we take ourselves to see or touch or otherwise perceive by our senses? (2) How is it that when these variations are left out of count as irrelevant, we can, none the less, independently of them, determine definitely and positively the nature of the external object? How, for instance, can we determine the extent of the thing seen though we cannot identify this with any one of the variable extents of the sense presentations which we have in seeing or touching it?

The answer to the first question is found in the distinction and relation between the body of the percipient and its environment. We apprehend our own bodies in apprehending a certain complex of sensa which we may call the body-complex. This complex is persistently and continuously presented while other sensa come and go. It consists, in part, of sensa which are the same in kind and continuous in existence with those that we experience in perceiving other physical existences and their local and temporal distinctions and relations. Thus, at this moment, the visual presentation which I have in looking at my hand, forms part of the continuous field of visual experience which also includes the visual presentation of a table. The same holds for touch when I touch successively or simultaneously my hand and the table. But the body complex also includes sensa peculiar to itself which enable each of us to apprehend his own body in a way in which we do not apprehend other things. These are (*a*) organic sensa such as hunger, thirst, and what are distinctively called *bodily* pains and pleasures; (*b*) motor sensa, which scientific enquiry has found to be conditioned by the variable states of muscles, joints and tendons, due to the variable position and motion of the limbs and sense organs. The first point to be noted is that the experiences in which we apprehend the body as visible and tangible normally accompany motor experiences and vary regularly as these vary. The second is that motor sensa are in regular ways under subjective control. Apart from the experience of resisted effort, we can initiate, continue, discontinue or change them at will, or, at will, retain them unchanged. This holds good independently of variable circumstances. I can wave my hand whether I am on the top of Vesuvius or in my lecture room. Now this subjective control of motor sensa also involves a corresponding control of the connected visual and tactual sensa. This, however, is not so unconditional. It depends on an *appropriate* adjustment of the organs of sight and touch. I cannot see my moving

hand unless my eyes are turned in the right direction. In this respect the perception of our body and its movements is conditioned like the perception of objects external to the body. With this reservation, we may say that control of our bodily changes as these are known by way of motor sensibility is also control over the same changes as known by sight and touch.

I now take a step of vital importance. Other sensa besides those which belong to the body-complex are also under subjective control. Their occurrence and cessation, their continuance and their variations are constantly conditioned by perceived movements and positions of the body which we can command at will. This control, as compared with that which we have over our own free movements, is partial, limited and conditional. But, within its limits, it is of a regular and systematic character. It is limited, inasmuch as we cannot by any motion of our body or sense organs determine *what* specific sense experiences we shall have. We can only determine their occurrence, persistence, and cessation, and cause them to change in various regular ways, when they are already present. Whenever I open my eyes I have certain visual presentations, and these regularly disappear when I close them. But the opening of my eyes does not, of itself, determine *what* special presentations I shall have, or how they shall be grouped. In stretching out my hand I get cutaneous sensations, but whether these shall be such as arise in contact with the air, with a table, or with water does not depend on me. In approaching or retiring from a visible object the visual sensum which we have in perceiving this object increases and diminishes in magnitude in a regular way. But which special magnitude it shall have at any given distance is otherwise determined. As a final example, take the experience of resisted effort. The degree and character of effort put forth is variable at will, but the degree and kind of resistance met with is not. There is thus revealed, in endlessly manifold complex and subtle ways, the antithesis between sense experience as dependent on the motion and position of the body, and as dependent on things external to the body. Change and difference so far as conditioned by our bodily position are not, and are not taken to be, change and difference in the external object perceived. This is my answer to the first question.

The second question arises out of this answer to the first. What is the real nature of the external object, if we cannot identify it with the real nature of the sense presentations which we have in perceiving it? Its character is apprehended

as quite independent of the bodily conditions of perceiving it; but the sensa we have in perceiving it perpetually vary as these conditions vary. How then can we determine positively and definitely the size and shape of physical objects outside our body, in distinction from the size and shape of the relevant visual and tactual sensa? We determine the independent nature of objects external to the sense organs, not directly by their relation to our sense experience but by certain relations which they have to each other, relations of such a kind that they *do not vary with the bodily conditions of perception.*

In order to illustrate the general principle, it will be sufficient to refer only to causal relations and to relations of extensive magnitude. If I turn on the tap in my bath-room, water flows and the bath begins to fill. Inasmuch as the flow of the water is apprehended as causally conditioned, in the given situation, by the turning of the tap, it is a process which takes place independently of the bodily conditions of perceiving it. Even if I leave the bath-room altogether I assume, that, because the tap is turned on, the water is still flowing as it would if I were present. The characters of external objects are determined for us, in part, by the differences they make to such independent causal processes. If we look down from a high cliff on men on the beach below us, the visual apparitions of the men beneath us are extremely small as compared with those of men standing beside us. A child might be led to believe that the men themselves are proportionally diminutive. But from the causal point of view this would mean that if he were near enough, he could pick one of them up and put him in his pocket. Similarly, if an oar were really bent in the water, this would be awkward for rowers.

The extensive magnitude of external objects is in part determined by their causal relations. But there is also a more direct way of fixing it, measurement by superposition. In the first instance, the measurement is by superposition of the members of the percipient's own body on each other and on external things.

This relation of superposition does not itself fall within immediate sense experience. When my hand is in contact with the table, there are not two layers of tactual sensa which cover each other. The relation is between two physical existences considered as existing independently of the bodily conditions of perception and the coming and going and other variations of the sense impressions which are connected with these bodily conditions. So far and so long as

the palm of my left hand is in contact with the table I cannot, by any motor adjustment, see either the surface of the table or the palm of my hand. I cannot touch either of them with the other hand, and I can neither see nor touch anything between them. It is thus that the relation of superposition is revealed as independent of the vicissitudes of my sense experience and its bodily conditions. It would be so revealed, even if my hand were insentient, if, for example, it were made of wood. Nothing depends on the peculiar nature of touch sensations. They are important only because, normally, when we have them our skin is in contact with a surface external to it. Hence they are for us signs of superposition. It is on this condition that the advantage of touch over sight depends. Otherwise the delicacy of tactual discrimination of size and shape is far inferior to that of sight. It is not the superior precision of any form of sense experience which leads ultimately to the minute exactness of scientific measurement. It is rather such relations as superposition which do not vary with the varying conditions of sense experience.

Such means of assigning positive values to the characters of external objects, after discounting the conditions of perception, just because they are founded on the relations of external objects to each other, can yield only knowledge of *relative* size, shape and position. Hence the modern doctrine of relativity is only a complex development of the relativity involved from the outset in primitive stages of perceptual knowledge. From the same point of view, we can account for the distinction of primary and secondary qualities. Secondary qualities are those which are not thus determinable by the relations of external objects to each other. Hence, though we may know them as existing independently of the variations of our sense experience, we cannot, or can only, in a very inadequate way, fix what they are apart from these variations.

The Precise Point at Issue.

From this account of my own position, it is clear wherein this differs from that of Mr. Alexander. We agree in holding that all knowledge is an immediate revelation of what exists. But he maintains and I deny that this immediate knowledge is primarily confined to what is immediately experienced. This question I have already dealt with. But there is another arising out of his position which requires further discussion. If we start, as he

seems to suppose, by knowing only what we immediately experience, how can we pass from immediately experienced sensa to external objects? According to Mr. Alexander the question itself rests on a mistake. It rests on the assumption that the sensum is an existence distinct from the external object perceived in experiencing it. Alexander on the contrary cuts the knot by assuming that when we perceive something external to the body or sense organs the sensum is simply identical with some feature either of the thing perceived or of some other thing which we have previously perceived or which at any rate exists or has existed in the external world. I have already pointed out that even if we grant the identity as fact, this does not explain how the identity comes to be known. This, however, is a difficulty which does not seem to trouble Mr. Alexander. But there is another which does trouble him, so that he feels bound to meet it by an elaborate explanation. He spends all his ingenuity in attempting to answer the question how, if the sensum is always identical with some feature of external existence, it is possible for the sensum to vary without corresponding variations in the external object which we perceive or take ourselves to perceive.

He uses the term "appearances" for sensa considered from this point of view. His general position is that so far as appearances differ from what we take ourselves to perceive this is because in them what really exists in the external world is either only partially revealed or revealed in a distorted way.

Real Appearances.

Setting distortions aside for the moment, let us consider first the fragmentary nature of the sense revelation. How is this fragmentariness made to account for difference between the sensum and the feature of the external object which is supposed to be identical with it? At first sight it would seem that there can be no road this way. For if the partial feature which is revealed is simply identical with the given sensum, it is hard to understand how in spite of this identity it may yet differ from the sensum, merely because there are other partial features which are not revealed. It would seem that to account for this there must be distortion as well as deficiency. In fact, as we shall see, Mr. Alexander does everywhere introduce distortion, without recognising that he is doing so. Appearances supposed to be partial but not distorted are called by Alexander real

appearances. A simple example is the change in the brightness of a light, or the loudness of a sound, as we approach the source or recede from it. According to Alexander "the mind situated further off selects a portion of the thing". Part of this is identical with the sensum, other parts are not. This would seem a simple and straightforward explanation, if we could attach a satisfactory meaning to the phrase "part of the brightness". But according to Alexander himself there are no such parts. As he immediately goes on to say, the "selection of the lower brightness from the real brightness does not mean that that real brightness is divisible into parts, as if intensities could be obtained by addition". This being so, I, at any rate, see no way of avoiding the conclusion that, inasmuch as there are no parts to select from, no parts can be selected. Each degree of brightness as immediately experienced is a distinct degree, occupying its own place in the intensive scale. To say that the real brightness contains the others is merely a very inaccurate way of saying that it is more intense or, at any rate, not less intense than any of them. It is therefore not surprising that side by side with this, Mr. Alexander gives another and quite different explanation of what it is that is selected from the total object. This is now said to be not part of the intensive quality, but part of the external stimulus which conditions the apprehension of it. On this view, "the distance from a sound selects that amplitude of the qualitative vibration which represents the diminished intensity produced by distance". The difficulty here is that no such selection takes place, and also that if it did it would not be what is required. Selection, in the only relevant sense, means that part of the external object is a sensum and part not. But in seeing brightness or hearing sounds the light and sound vibrations are not presented as sensa either wholly or fractionally; and even if they were they would not be identical with the brightness or the sound. They would not be so either in fact or according to Mr. Alexander. For, according to him, a sensible quality is something new which emerges when certain motions occur. It is not identical with the motions themselves. Thus the alleged selection from the amplitude of the vibration merely means that the occurrence and nature of the sensum depends not directly on the vibration as it initially proceeds from the external object, but on the way in which the previous state of the sense organ and nervous system is modified by that phase of the vibration which reaches the ear. Wherever the vibration comes from and however it may originally be set going, the sound sensum is determined by that phase of it in

which it arrives at the sense organ and contributes to determine changes in this and in connected neural arrangements. In other words the occurrence and nature of the sensum depends directly only on what takes place in the body of the percipient, however this may be occasioned. But this is just what Alexander is concerned to deny.

Let us, however, suppose that, in some relevant sense, part of an intensity may be revealed in sense experience and part not. Such partial presentation will not cover the facts unless it is taken also to involve distortion.

What is revealed as a sensum, so far as it is thus revealed, is itself a distinct and separate intensity, not part of an intensity. The part in being cut off from the whole to which it is supposed to belong, becomes itself a distinct intensive whole, a distinct degree of intensity occupying its own place in the intensive scale. Thus a less intensive magnitude is substituted for the intensive magnitude of the external and distinct sound or brightness. This is distortion. But Mr. Alexander cannot admit distortion in what he calls "real appearances". The real appearances are the basis and presupposition of all others and they are called real just because they are assumed not to be distorted by bodily or mental conditions.

So far I have been considering only whether Mr. Alexander's theory is tenable, when examined from the point of view of our present knowledge of the external world and of the conditions of perceiving it. But there is a further question which, though it is altogether of vital importance to his general position, is completely ignored by him. Let us grant that the several degrees of brightness which we immediately experience in approaching a source of light form an ascending scale which has its upper limit in the brightness of the external obtect and that this brightness exists quite independently of our sense experience and its bodily conditions. Let us grant that this holds good in such a way that, at least metaphorically, we may legitimately speak of the several degrees of brightness as parts of the external brightness. Conceding all this, we have still to inquire whether it is included in the primary sense knowledge of the percipient. Is the knowledge a constituent condition of the first apprehension of the external object as such? If Mr. Alexander had faced this question, he would, I submit, have found himself caught between the horns of a very serious dilemma. If he says "yes" then he must frankly and consistently surrender the assumption that we can primarily know only what we immediately experience as we

experience a present sensum. What thus enters experience is only a part of the external intensity. If it not only *is* a part, but is apprehended as being a part, there is the knowledge of an intensive whole, which includes it, and this whole, *ex hypothesi*, is not itself a sensum, and has never been a sensum, or if it has it cannot be known to have been a sensum. I should say that the intensive whole, if it is primarily known, is known by a thought which has its source in the essential incompleteness of immediate experience. In the strict use of language, I prefer to say that it is known *by* experience rather than that it is itself experienced. Mr. Alexander, on the contrary, may insist if he likes in calling thought, as such, a kind of experience. The question concerns only the employment of words, and does not touch the real issue. The essential point is that on any view the bare immediacy of sense is transcended, and so transcended as to yield knowledge of what Hume called matter of fact in distinction from relation of ideas. More is immediately known than is immediately experienced.

On the other hand, if it is said that the partial intensities are not primarily apprehended as partial, Mr. Alexander seems to be impaled on another horn of the dilemma. How do the parts of the whole external intensity come to be apprehended as being parts of it? Or, what comes to the same thing, how is the existence of the whole external intensity known at all? It must be remembered that for Mr. Alexander the apprehension of real appearances is the basis of all further knowledge of the external world. It is here, therefore, if anywhere, that we must look for the answer to our question. But he fails to supply any answer, and none can be given consistent with the assumption that we primarily know only what we immediately experience. He is thus, after all his pains and ingenuity, faced with what is, in principle, the old insoluble problem. If we begin by knowing only our own sensa, how can we ever get beyond them? The difficulty is not met and is hardly mitigated by saying that the sensa are in fact identical with partial features of the external object.

Real appearances vary not only in intensity but in size and shape. When we move away from a plate at right angles to its centre, the relevant visual sensum retains its shape, but diminishes in size as the retinal surface excited becomes smaller. Yet the size of the external object as determined by measurement and the part it plays in causal process remains constant. If the plate is seen obliquely the shrinking is greater for one axis than another and its sensible shape varies in consequence. The sensum is elliptical in-

stead of circular. According to Mr. Alexander, "the distance of the eye from the plate acts selectively as with the varying degrees of brightness; the size which we see is a portion of the real geometrical size of the plate".[1] Here he tacitly assumes that what we see is identical with the visual sensum which we have in seeing. This is contrary to the ordinary use of language, and gives rise to great confusion. What we take ourselves to see is not merely the size of the visual sensum but the size of the external object as suggested under the given conditions by the visual sensum. As I approach or retire from the plate there are certain limits of distance within which I do not ordinarily notice the difference between the successive visual experiences so as to compare them. I have learned to regard them as due merely to bodily conditions of perception and therefore as irrelevant. Hence I see the plate as of the same constant size and shape in spite of them. Beyond these limits of distance I become aware of the sensible variations as such, and then they perceptually suggest corresponding, though not proportionate, variations in the external size and shape. So far as this happens, I still take myself to see the size and shape of the external objects. The only difference is that I may recognise that I see them inaccurately. Mr. Alexander, in identifying the sensation with what is seen, shares the fundamental fallacy of Berkeley that we properly and primarily perceive only what we immediately experience.

External size and shape is of course the same whether we are conversant with it by way of sight or by way of touch, so far as the perception is not mistaken. But this does not imply that the extensive tactual sensum is ever identical with the extension of visual sensa. This identity is asserted by Mr. Alexander; but he does not even attempt to meet the cogent argument against it in Berkeley's *Theory of Vision*. He merely appeals to a simple experiment. "We have only to hold the plate in our hands and move it away . . . in order to assure ourselves that the touch and the colour of the plate are in the same place." Now I agree that this experience yields evidence of the identity of extension as seen, and extension as touched. But it does not in the least show that visual and tactual sensa are included within the same continuous extension. What is really relevant and important is that the extent of the plate as measured by superposition of the hand remains constant, while the visual sensa vary. The constancy of tactual sensa as compared

[1] *Space, Time, and Deity*, vol. ii., p. 194.

with visual is not a superiority but a defect. It is to be noted that they are not constant except for the same part of the skin; and even with this restriction the constancy is only due to the fact that the conditions under which the tactual experience is gained are strictly fixed and limited instead of being widely variable as they are for sight. But this is merely a defect to be added to the other imperfections of touch as compared with vision. The tactual sensum is constant only in the way in which any one of the alternative visual presentations is constant so long as the eyes are turned in the same direction, and the thing seen is at the same distance. The difference is that tactual experience is limited to one set of conditions and does not occur at all without them.

It follows from what I have just said that neither the real nor the apparent shape of the external object is identical with the size or shape of the visual apparition immediately experienced. The real shape and size of the external object is determinable by measurement and causal relations. Its apparent size and shape is what we, rightly or wrongly, estimate the real size and shape to be as suggested by present sense experience in conjunction with preacquired knowledge. This being so, there is no *à priori* reason for accepting Mr. Alexander's position that the size of the sensum and the external size differ only as part and whole, the extent of the sensum being only a portion of the extent of the thing seen. We have now to consider whether this hypothesis fits the facts better or worse than the alternative view that the sensum depends directly and ultimately only on the way in which the sense organ is affected.

Extensive magnitude unlike intensive does contain distinct parts and we may therefore speak quite literally of some parts being revealed in sense experience while others are unrevealed. But this is not an accurate description of what we observe when a visual presentation shrinks as the distance from the thing seen increases. It is not correct to say that some parts vanish while others persist. Each discernible part shrinks as well as the whole and the whole shrinks only because the parts shrink. Details do disappear but only because they gradually become too small to be distinguishable, until at the last we are left with a blur in which none of the original details can be discerned. This does not fit in well with Mr. Alexander's theory. But it is just what we should expect if the visual magnitude is correlated with retinal and nervous process and is dependent on other factors only if and so far as they condition this.

Even if, setting aside this difficulty, we suppose that

what happens is that some parts are taken and others left, this is not enough. It does not explain how or why the selected parts close with each other and run together in one continuous immediately experienced extension, instead of having distances or gaps between them, corresponding to the parts selected. This involves more than mere selection. It is also distortion of the kind which Mr. Alexander would class as illusion. Parts which are immediately contiguous in sense experience are separated by intervals in the external object. In Mr. Alexander's language, they are seen in situations which do not really belong to them. We thus again reach the result that the *real appearance* in which the external object is supposed to be simply identical with the sensum is, in fact, infected through and through with illusive distortion. But the basis of Mr. Alexander's theory is that real appearance is free from illusion. It is indeed for that reason that he calls it real. There is also the further difficulty that the distortion as distinguished from mere selection requires a separate special explanation on another principle. I do not doubt that Mr. Alexander's ingenuity could devise one. But it is the extreme of perversity to put forward two radically distinct hypotheses, both of a very complicated nature, when the facts themselves carry one simple, obvious and adequate explanation, so to speak, written on their face. The size and shape of the sensum varies directly with the retinal excitation whatever factor may be concerned in producing this.

Before leaving the subject of real appearance, I may note that the same epistemological difficulty confronts Mr. Alexander for extensive as for intensive variations. Does the percipient subject himself know in primary sense knowledge that there is a total extension containing all the parts revealed to him as sensa? Does he primarily apprehend the parts as parts of this whole? If he does, then primary sense knowledge transcends immediate experience. On the other hand if parts are not apprehended as parts, how can we ever come to know that there is a whole which transcends and includes them?

Mere Appearances.

According to Alexander the distinctive character of the appearances which he calls real is that though they are selected from the whole nature of the thing perceived they are not otherwise altered. Besides this he recognises two other kinds of appearances which are not merely

selected but distorted. The word "distorted" means that instead of the external object which we take ourselves to perceive, something else is substituted more or less different from it. Strictly following out his general philosophy of perception, Mr. Alexander maintains that what is thus substituted does not at all owe its nature and existence to any process occurring in the body of the percipient; on the contrary it is always some feature or other in the external world, existing quite independently of the occurrence of sensations and their bodily conditions. There is distortion only inasmuch as this independent existence is sensuously revealed in connexion with a thing to which it does not belong: and this means that it is revealed in a place where it really is not or at a time when it really is not. Such misleading revelations are traced to different sources. They may be due to the mind of the percipient, which includes for Alexander the bodily conditions of perception. When this occurs the appearances are called illusory. On the other hand the distortion may be due merely to the combination of the thing perceived with other things which are also themselves perceived or at least capable of being so. The sense-appearance is then called a mere appearance. It is with mere appearances that we are at present concerned.

At the outset, I find it impossible to obtain from Mr. Alexander any consistent and intelligible account of what a mere appearance is. On two points, indeed, he is clear. The mere appearance is not identical with any feature of the external object to which it is referred by the percipient, when this is considered in detachment from its environment. The partially immersed stick, when considered by itself, apart from its immersion, is not bent as it seems to be. In the second place, the mere appearance is in some way identical with a feature of the total situation composed of the special object perceived and other objects combined with this. It is when we inquire how this can be that the puzzle begins. I find in Mr. Alexander two distinct accounts of what takes place; and neither of them seems tenable. Both are given side by side in the following passage. In mere appearance, "we do not sense the thing of which we apprehend the mere appearance taken by itself, but in connexion with some other thing which modifies it".[1] Let me here interrupt the quotation to say that this is the first alternative. What is relevant in the sensum is, on this view, really a feature of the particular external object perceived, as this object is really

[1] *Space, Time, and Deity*, vol. ii., p. 191.

modified by something else. In the rest of the quotation Mr. Alexander drops this view and passes, without being aware of the discrepancy, to a quite different position. "What we sense or otherwise apprehend is not the thing by itself, but a new thing of which the thing forms a part; and there is no reason to suppose, illusion barred, the compound thing does not really possess what we sense." Here the sensum is identified, not with a feature of the perceived thing as this is modified by its environing conditions, but with a feature of a compound object conditioned by the combination of the thing perceived with other things.

Both these explanations break down hopelessly: and Mr. Alexander is only able to conceal the inadequacy of each of them by oscillating between it and the other. Take first the modification theory. If the perceived object is really modified by the conditions under which it exists, this means that it really has a character which would not characterise it if these were absent. It is this character which is revealed in the mere appearance. What is revealed as a sensum does in fact belong to that external object which we take ourselves to perceive. It is plain that if this were so, there would be no distinction between a mere appearance and a real appearance. As a matter of fact, what Mr. Alexander calls mere appearances are not constituted in this way. The water does not really bend the stick in which it is plunged. What is modified in both instances is the light in its passage to the eye, and the retinal excitation, and the visual presentation dependent on this. We are no better off if we try the other alternative, that what is revealed as a sensum is a character of a composite external object containing, as a part of itself, the particular thing which we perceive. It is not true that the bend in the visual presentation when we see a partially immersed oar, is identical with a bend of the whole physical complex constituted by the water and the oar. There is no such bend; what is true is that this complex of external conditions gives rise to refraction of the light proceeding to the eye, and thereby determines the retinal process in such a way that the visual sensum is really bent. Similarly when we see a distant mountain through a haze, it is not true that the colour-quality which we immediately experience is really spread over the surface both of the haze and mountain. In what way then can it be said to belong to both of them together if it belongs to neither of them separately? To say that it belongs to both together is only a very inaccurate way of stating the obvious fact. The light reflected from the mountain is so altered by its passage through the haze as to

affect the eye as it would not otherwise do and so gives rise to different visual presentations.

We have yet to consider a third formula used by Mr. Alexander, which is inconsistent with either of the others. The sensum is supposed to be identical with some feature of an object existing in the environment of the percipient: but owing to other conditions also existing in the environment, what is thus revealed as a sensum is revealed in a place in which it is not really present. How far this explanation is supposed to cover mere appearances in general, I am not sure. It is applied by Mr. Alexander especially to one mere appearance, reflexion in a plain mirror, assumed to be flawless. Let us suppose that what is reflected is the body of a man facing the glass. Then, according to Mr. Alexander, the shape, size and colouring of the man is really where the man is, some distance in front of the mirror. But for one who sees the reflexion this identical shape, size and colour is immediately experienced in a place where it is not, *i.e.*, some distance behind the surface of the glass.

This theory, if it is taken strictly, I hold to be quite impossible. But it is important that it should be taken strictly, and not confused with another position which no one, I presume, would dispute. Undoubtedly when we see a man reflected in a mirror, his shape and size, and consequently the man himself appear, *i.e.*, *seem* to be where they really are not, or seem as if they were where they really are not. If the percipient does not otherwise know the contrary, he will believe that there is a man behind the mirror. A baby, for instance, may feel for the man whom he takes to be in front of him. To the baby it seems that there is a man there. To us it only seems as if there were a man there.

Up to this point the word "appears" has been used as a synonym of "seems". I have not spoken of appearing absolutely, but only of something appearing or *seeming to be* this or that, or appearing as if it were this or that. But the word appearing has also another and a radically different meaning. It may be used absolutely. Now if and so far as anything really appears in this sense it really is as it appears. If the man himself really appears behind the mirror he really is behind the mirror. The apparition is the reality itself appearing. There is no question of seeming. Whoever may deny this, Mr. Alexander cannot consistently do so. For his whole philosophy of perception is based on the assumption that what is revealed in immediate sense experience exists as a feature of the external world. This presupposes that at least it really exists.

The relevant visual sensum which we have on looking at the reflexion of a man in a mirror does really appear and not merely seem to be in a certain place with a certain situation relatively to other places. This is possible inasmuch as it is a locally distinct part of the total field of visual sensa experienced at the time. It is a sense apparition revealed within a more extensive apparition which is itself revealed in the same way. Within this continuous whole it is immediately experienced in certain local relations to other sensa, *e.g.*, those which we have in seeing the frame of the mirror or articles on our dressing table. An appeal to immediate experience yields unambiguous evidence that it does really appear and does therefore exist in these relations and does not merely seem to be in them. Unfortunately for Mr. Alexander, this appeal to immediate experience makes nonsense of his whole doctrine of sense knowledge. It makes nonsense of his fundamental doctrine that sensa are identical with characters of the external object. For the form and colour of the man whose reflexion we see is not really placed relatively to the frame of the looking glass, as the corresponding visual apparitions are really placed in relation to each other. If the form and colour of the man are identical with the form and colour immediately experienced, when his reflexion is seen, then the form and colour of the man must really exist, and not merely appear to exist, in two separate places at the same time. This is most clearly shown by a fact which evidently puzzles Mr. Alexander, as it ought to do. "If" he says, "you touch a thing like a pencil which is in front of you so that you see it directly and also in the mirror, the judgment is troubled. For the virtual image is only seen with the help of the mirror, and the real pencil is seen as well as touched; and there are thus two visions of space at once."[1] On my view this means that though we see the same single external object, there really are three distinct sensa, two visual and one tactual. But if, like Alexander, we identify the single external object with the several sensa we are in a desperate position. The visual apparitions are really distinct within the field of visual experience, and separated from each other by an experienced interval. Immediate experience reveals their local separation just as it reveals their shape and colour. I have as little right to deny that there are two of them as to deny that they exist at all. It is just because there are two visual sensa that it seems as if there were two external objects—two hands.

[1] *Space, Time, and Deity*, vol. ii., p. 198.

It is strongly, vividly and insistently suggested that there are two hands, only because in ordinary vision there are usually two external objects where two visual presentations are distinguished. It is futile to urge that the same sensum is twice apprehended and on this account seems itself to be doubled. For there is no way of distinguishing the awareness of one sensum from that of the other except by distinguishing the sensa themselves.

Illusory Appearances.

Illusory and mere appearances are, for Mr. Alexander, essentially akin inasmuch as in both of them a sensum appears in connexion with an external object to which it does not really belong. But there is a difference in the conditions under which this takes place. In mere appearance the displacement is due to factors external to the body of the percipient. An illusion, on the contrary, is due to what occurs within the sensitive organism. Both in illusion and mere appearance, what is sensibly revealed disagrees with what really exists only so far as a sensum is misplaced in space or time. The sensum itself which is thus misplaced is supposed to be identical with something which really exists in the external world at some place or time. In mere appearance, it is supposed to be somehow contained in the total situation which confronts the percipient. In illusion it may be anywhere.

I have already examined the conception of something as appearing in a place in which it is not. The same difficulty which I have noted in dealing with the mirror, arises here also. "There is," says Alexander, "no illusion until an element in the appearance which does not belong to the thing is perceived as belonging to it: until, for instance, the green seen by contrast on a piece of grey paper lying on a red ground is seen as an affection of the place of the grey paper. The green by itself is not illusory, but the patch, occupied by the grey, seen as green." (II., p. 209.) I would here first inquire what ground we have for asserting the existence of the green sensum. The only answer and the sufficient answer is that the green is actually revealed within immediate sense experience. But on the same principle we are also bound to assert that the green sensum does not merely seem to be actually placed within the red. For what is immediately experienced is a green situated within a red field and continuous with it. This green therefore does not merely seem, but actually is, within the red.

But, according to Alexander, the red as sensed is identical with the red colour of the paper, and the colour of the paper is where the paper is and nowhere else. If this were true it would inevitably follow that the green is really situated within the red surface of the paper and continuous with it. But, *ex hypothesi*, what occupies this particular place within the red background of the paper is, in fact, not a green but a grey speck. The only conclusion that I find myself able to draw is that Mr. Alexander is wrong in identifying sensa with features of external objects existing independently of sensation and its bodily conditions. The existence and nature of sensa are inseparable from correlated processes in the nervous system and sense organs. The characters of things external to the body are unaffected by these processes.

In conclusion, I must insist on an objection which, if it is well founded, is fatal to Mr. Alexander's account, not only of illusory perception, but of ideal revival in general. It is fundamental to his whole theory that when the mind knows an external object it shall communicate with *this* through a specially appropriate transaction in which both are equally partners. In ordinary sense perception there is a continuous train of occurrences causally initiated by the object and terminating in a process taking place in the brain of the percipient. There ought to be an analogous bridge in ideal revivals and in illusion between the independently existing object and the cognitive subject. According to Mr. Alexander there is such a bridge here also. The only difference is that whereas in normal perception the common transaction is initiated from the side of the object, in illusion or ideal revival it is initiated from the side of the subject. In ordinary perception, the bridge is thrown across the stream from one bank; in ideal revival and illusory perception it is thrown across the stream from the opposite bank. It must be admitted that this formula is very neat. My difficulty is that it seems to ride rough-shod over the relevant facts. The formula could be justified only on the false assumption that for example, when, owing to contrast, we have a green sensum instead of a grey, there is initially a certain process in the brain and organ of vision, which sets going a light vibration or some equivalent train of occurrences terminating in something which is really green and not grey. Otherwise the interval between the percipient and the independently existing object is not bridged as it is in veridical perception. If it is said that no bridge is required and that a certain cerebral event by itself suffices to unveil a certain sensum in whatever place and time this may exist, I would ask you to

consider the hopeless jigsaw puzzle which, on this view, would confront us from our infancy. Then, sense experience would indeed reveal characters and qualities in the world external to the body, but would supply no clue to determine where and when they existed. It may be said that originally the process which discloses a certain sensum must be initiated from the side of the object, but that when communication has once been opened, the nervous occurrence will suffice by itself however it may arise. But the explanation does not really meet the difficulty. It is as if it were maintained that having previously crossed a stream by a bridge we can therefore cross it after the bridge has been swept away, provided only that a fragment of it remains on our side of the stream.

II.—IS THE CONCEPTION OF THE UNCONSCIOUS OF VALUE IN PSYCHOLOGY?[1]

A Symposium by G. C. Field, F. Aveling and John Laird.

I. By G. C. Field.

It is one of the chief claims put forward by the exponents of the so-called 'new' Psychology that they have been the first to recognise seriously the importance of the Unconscious, and the necessity of assuming unconscious mind or unconscious mental processes to explain the mental occurrences that do take place. I propose here to ask whether this line of thought is really of value in Psychology. I do not intend to discuss whether it may or may not have a certain value as a provisional working hypothesis within certain limited fields, say, the applied science of Psycho-therapy. The title confines us to a consideration of its value to Psychology, in the proper sense. Does it help us to understand more clearly what sort of thing the mind is, or what sort of thing the concrete human being is? Does it afford us a real explanation, an explanation that gives us real knowledge, of the mental processes of this human being? To these questions I find myself compelled to return a decisively negative answer, well aware that by doing so I shall at once write myself down as a hopeless obscurantist in the minds of many people. But I will try to give reasons within the limited space at my disposal, why I am unable to discover any value in the hypothesis and why I maintain further that, as it is used by some modern writers, it leads us to a positively erroneous idea of the nature of the mind and of certain mental processes.

My first difficulty is one with which we are all familiar. I repeat it here, without making the slightest claim to originality in it, because I cannot find that the exponents of the 'new' Psychology have so far shown the slightest sign of realising its seriousness or even its meaning.

We are told again and again that it is necessary to assume the existence of the Unconscious, of unconscious regions of the mind or of unconscious mental processes. But before we

[1] Contributed to the Joint Session of the Mind Association and the Aristotelian Society at Manchester, July 14th-16th, 1922.

can do that, and still more before we can put forward this assumption as a real explanation of anything, we must at least have an intelligible idea of what sort of thing this is which we have got to assume. And it is here that the difficulties begin. The point has often been put. It is urged in the first place, that the only evidence we have of anything in ourselves beyond bodily processes is our experience of our own conscious processes. And the only things which we can call 'mind' or 'mental' with any intelligible meaning are these conscious processes. Anything in us which is neither conscious nor physical is therefore something unknowable and indescribable, or indescribable except in purely negative terms. But if the Unconscious is thus merely a negative idea, something of which all that we can say is that it is not physical and not conscious, then it ceases to be anything which could be given as a real explanation. It is simply an X, an unknown cause. And to ascribe anything to it is simply a confession of ignorance.

This, of course, would not be admitted by the advocates of the claims of the Unconscious. And we find them, accordingly, continually speaking of the activities of the unconscious mind in exactly the same terms as of the activities of the conscious mind, so that we hear of unconscious desires, emotions, wishes, fears, or of unconscious thoughts or memories. These unconscious mental processes as Dr. Ernest Jones tells us (*Papers on Psycho-Analysis*, p. 121) "present all the attributes of mental ones, except that the subject is not aware of them". And consciousness thus becomes, he says, "merely one attribute of mentality, and not an indispensable one". I have searched in vain for a clear statement of what the other attributes of mentality are which these processes do possess. And when I reflect on what I mean by a wish or an emotion or a feeling, I can only find that I know and think of them simply as different forms of consciousness. I cannot find any distinguishable element in these experiences which can be called consciousness and separated from the other elements even in thought so as to leave anything determinate behind. And to ask us to think of something which has all the characteristics of a wish or a feeling except that it is not conscious seems to me like asking us to think of something which has all the attributes of red or green except that it is not a colour.

I believe that everybody really feels this difficulty, and the result is that many writers slip into a way of talking, and I believe at times of thinking, of the Unconscious as of another conscious person of exactly the same kind as the conscious

personality that we know, which exists alongside it and every now and then affects it in some way or other, so that to explain an event by referring it to the Unconscious becomes just the same kind of explanation as to say that something was done by John Jones instead of by Tom Smith. But whatever the Unconscious is, it is not that. Or else we are invited to take refuge in spatial metaphors, to talk of different levels or regions of the mind, and to think of it, perhaps, as a box with a false bottom and a hidden receptacle underneath, which contains all sorts of objects. But this, like the other attempt to describe the unconscious mind, only ends by describing something else. And there is clearly something wrong with a conception of the mental which can only be described in metaphors drawn from the material.

These are purely general considerations. To come to closer grips with the subject it is necessary to examine the considerations which are supposed to make it necessary to assume an Unconscious, and the kind of occurrences which are supposed to be explicable only on such an assumption. And in this connexion I should like to give a brief consideration to a typical case, the case of claustrophobia, of which we have such an admirable description by Dr. Rivers in one of the Appendices to his *Instinct and the Unconscious*. In this case, it will be recalled, an event took place in the early history of the patient which aroused in him acute fear at the time. The event was forgotten, so completely that it could not be recalled by the ordinary method of remembering. But the emotion, or the tendency to the emotion, remained, and was aroused in the patient whenever he was in a situation similar to the original one in the respect that it was in an enclosed space.

Now how does Dr. Rivers describe what happens here? Note, in the first place, that he does not say, as I should say, that the person is no longer conscious or aware of the past event. He says that the event itself, which he calls the experience, becomes unconscious. That is to say, he holds that the past event or experience continues to exist in the form or in the place which he calls the Unconscious. The evidence for this is (1) that the results produced by the event continued in the permanent form of Claustrophobia; (2) that by the methods of Psycho-analysis the patient can be brought to remember what happened. But do either of these facts necessitate such an assumption? Or are they made any more intelligible by this way of talking? Let us consider them in turn.

(1) Confining ourselves to what is absolutely beyond doubt in the case, we can say firstly that the past event—of

which, of course, the person was fully conscious at the time —is forgotten. And secondly, it is clear that the event produced such an effect on the nature or disposition of the patient that in the future he always feels fear in enclosed spaces. This feeling, again, is not in any sense unconscious: the patient is, of course, only too conscious of it.

But what I want to know is why the effect which the event produced on the person should be described as if the original event somehow went on existing and working? And I can see no reason for it at all. We do not think it necessary to talk like that in any other connection. Many events in this physical world produce permanent results beyond themselves. But we do not, except in a very figurative way, speak of the event as continuing to exist or as going on happening somewhere. Nor, indeed, would it really be intelligible to do so. An event, whether in the physical world or in conscious experience, when it has once happened is over and finished. It is not in any sense a thing in itself with a permanent existence and a capacity for different kinds of action. When an event produces a result, the result is something other than itself and cannot be described in terms which imply the continued existence of the event which caused the result.

In what terms, then, can we describe the result, in a case like that which we are considering? The actual result of which we can be quite certain is the appearance in the consciousness of the patient from time to time of a particular emotion in particular circumstances, in this case, the emotion of fear in enclosed spaces. And from that we conclude naturally that there is something permanently there in the nature or characteristics of the person which leads to that feeling being aroused in these circumstances. That is to say, we suppose a certain permanent disposition or tendency to feel fear in enclosed spaces.

Dr. Rivers expresses some scorn of those who assume psychological dispositions, and declares that they are positing "purely hypothetical factors, when those open to direct observation fail them". This is a curious reproach from an advocate of the existence of the Unconscious, which is, if anything is, a purely hypothetical factor and in no conceivable sense open to direct observation. But in any case it entirely misconceives the real meaning of the conception of dispositions or tendencies. To begin with, something of the kind is not a mere hypothesis, but a necessary inference, and one universally made whenever, for instance, we speak of a man being bad-tempered without meaning necessarily that he is at that moment actually feeling anger. But it is also

necessary to point out that, if we know what we are doing, we shall not make very exaggerated claims for the idea. We shall not, for instance, make the claims for it that are made for the idea of the Unconscious, nor put it forward as an explanation in the sense in which that idea is put forward. It says simply that if a human being, or indeed any other kind of being, behaves in a certain way (using 'behave' in the widest sense) from time to time, there must be something there in the nature of that being which leads or predisposes him to that kind of behaviour under certain conditions. There must be a permanent, or relatively permanent, mental structure, to use Prof. McDougall's phrase, which expresses itself in that particular kind of mental activity. But of what sort of thing this mental structure is we know nothing, apart from the particular kind of activity to which it leads. We can only speak of it or think of it, as a tendency or disposition *to* this or that kind of activity. While mental function or mental activity we can only know or think of as some kind of conscious experience.

We cannot, perhaps, even say with any certainty whether this mental structure is really mental or physical. If we adopt the latter alternative, we should have to say that a certain kind of arrangement of the physical structure of the brain and body is all that is necessary to give rise to certain kinds of conscious experience in certain surrounding circumstances. Such a view could certainly not be dismissed as untenable. It would, I take it, be held by Prof. Alexander or by Dr. Bosanquet. It is implied in the remark of the latter, quoted with approval by the former; "It seems to me that the fertile point of view lies in taking some neuroses —not all—as only complete in themselves by passing into a degree of psychosis". We might, on the other hand, feel obliged to maintain that there is something, a definite individual existent, there which we can call a mind and which we believe to be made out of some stuff which is definitely not material and which we can properly speak of as mental or psychical. In such a case, we should have to suppose that this mind has certain determinate characteristics which in given circumstances will lead to a certain kind of conscious activity. On this view we could never, so far as we can see, hope to arrive at any kind of knowledge of what this permanent structure was like apart from the conscious activity to which it leads. Whereas if we adopt the former alternative, we could, I suppose, ideally at least, look forward to an increase in our knowledge to a point at which we could know what kind of material pattern in our nervous system

constituted the permanent tendency to this or that kind of behaviour.

If we adopt the physical view, it is sufficiently obvious that there is no need and no room for the Unconscious or unconscious mental processes. Explanation of anything that takes place in consciousness, which cannot be sufficiently accounted for by previous events in consciousness, can and must be looked for in physical processes. And this view cannot be dismissed lightly. If it is rejected, it can only be as a result of very careful consideration of very much wider questions than those which we are now discussing. As a methodological assumption it will work just as well as the hypothesis of unconscious mental processes. It is no doubt true that, at any rate in the present state of our knowledge, these physical processes are absolutely unknown to us and a pure assumption. But then so are the supposed unconscious mental processes. And there is this difference between them. We may not know anything about the physical processes in any particular case. But at least we have in general some idea of the sort of things that we are assuming. Whereas, if we postulate unconscious mental processes we have not even any idea of what kind of things they could be like. As suggested above, if we try to describe them we inevitably find ourselves using metaphors which deprive them of just those characteristics which we are most anxious to assert of them, and describing them as another set of conscious activities or as material occurrences in space.

The case is rather different if we believe in the existence of a mind as a separable or distinguishable entity. Here obviously, we can, with proper precautions, speak of unconscious regions of the mind, indicating by that the mental structure as opposed to mental function, the permanent dispositions or tendencies in the mind which are not at the moment active, the bad temper of the man who is not angry at the moment. But these, of course, would be something very far short of the Unconscious of the 'new' psychologists, which is or involves active mental processes.

But besides this, if we suppose a mind, we cannot refuse to admit the possibility of processes going on in that mind besides the conscious processes which we are aware of. This would be the real Unconscious. But, if we assert such processes, we can only describe them negatively by saying of them that they are processes in the mind which are not conscious. We can have no idea of what their positive characteristics are, because they cannot be like anything of which we have any experience.

But is there really any necessity thus to erect an altar to the Unknown God? It is generally claimed that this necessity arises because we find events in consciousness which cannot be adequately explained by preceding events in consciousness. I am not perfectly convinced that the fact is as stated. In the case of Claustrophobia, for instance, so far as I can see, all that we know to be there and all that we need assume is, firstly, an event in consciousness and then the result which it produces, that is, a lasting effect on the mental structure of the patient in the form of a disposition or tendency to another kind of conscious experience, namely, the emotion of fear in enclosed spaces. But this disposition or tendency only becomes active when, under the appropriate stimulus, the emotion is actually felt. I can see no ground for supposing that there is anything actually occurring, any active process, involving some kind of change or some series of events, going on in the mind outside consciousness altogether. Indeed the facts seem to me to tell the other way, for the reason that the tendency apparently remains unchanged in character, producing similar results in similar circumstances, until the patient is cured by the production of an event which is definitely in his consciousness, *i.e.*, the recollection of the original event and the realisation of the connexion of that with the emotion. I would not, however, assert without much further investigation that all the supposed cases could be accounted for on these or similar lines. But even supposing that we are presented with a case in which it seems necessary to assume that some process actually has gone on over a period of time which was not, while it was going on, accessible to consciousness, are we necessarily bound to assume that this process is a mental one? If we believe, as everyone really does in practice, in the interaction of mind and body, the process may just as well be a physical one. And the assumption has, as has been pointed out above, at least the advantage of intelligibility. It is only the dwindling band of stern and unbending psycho-physical parallelists who will feel themselves obliged to assume that the process is mental in character. And even for them, it is necessary once more to insist, the assumption gives no information and makes nothing any clearer or more intelligible. It only has to be put in to preserve intact the metaphysical doctrine of parallelism.

(2) We come now to the second line of argument. That is the view that, because an event in the past has been forgotten and can be recalled by certain methods, we must therefore suppose that the event has been existing all the

time in the unconscious regions of the mind. There is no doubt that the discovery of these particular methods of recalling forgotten events is a discovery of the greatest practical importance in the diagnosis and treatment of psycho-neuroses. But for the purposes of this discussion, and in general considered as throwing light on the fundamental problems of the nature of mind and experience, it does not appear that there is any difference in principle between these special cases and any other case of remembering. There are all possible degrees of difficulty in recalling different events, and many different methods by which we can do so. The discovery of one more method of particular efficacy in certain cases does not affect the general nature of the processes under discussion.

The question really resolves itself into this: When an event has taken place of which we were aware, and we remember that event afterwards by whatever method, does that mean that in any sense the event has continued to exist in any region of our mind all the time? I believe that in this connexion, as in so many others, a great deal of confusion arises from the use of that most dangerous word 'experience'. In reading Dr. Rivers' book, for instance, I find him constantly speaking of an unconscious experience where I should speak of a forgotten past event, with the apparent implication that the whole event is in some way a mental occurrence.

With this we are obviously face to face with the great question of the relation of mind to its objects. In any act of knowing what is "in" the mind, or mental (for I can conceive of no meaning of the spatial metaphor 'in' the mind, except that it is mental in character),[1] and what is 'outside' the mind or physical? This is, of course, one of the burning questions of modern Philosophy, and obviously, I cannot discuss it here. But I mention it because it seems to me obvious that it is a question on which we must make up our minds before we can begin to think clearly in Psychology at all. For surely a science which attempts to describe in any way the nature of the mind or consciousness or the mental, is bound to give a clear account of what is mental and what is not mental in such a typical event as an act of cognition. Unless we are clear about this we cannot possibly arrive at

[1] No doubt on certain views, such as those held by Prof. Alexander, we can speak of an object having spatial relations to the mind. "In" the mind, then, would mean strictly in the brain. But, of course, there is no question of a physical object, of which we are aware, being inside the brain.

a clear idea of what kind of thing we believe the mind and mental processes to be. We cannot get out of it by dismissing the question as Metaphysics, just because its solution demands a considerable amount of effort and hard thinking.

If we take, as I do, a Realist view of these matters, it is obvious that it is impossible to accept any description of the 'experience' as continuing to exist and to act in the mind. This way of thinking of an 'experience' as a detached object working on its own in this way or that would have difficulties, I should imagine, for any school of thought. But the special objection of the Realist would clearly be to the failure to distinguish the object known from the knowing of it. This confusion is particularly easy in the case of memory. If we see a dog, it needs a considerable amount of training in certain schools of Philosophy for us to persuade ourselves that the dog is 'in' our minds. But when we remember a dog that we had seen, as the dog is not obviously 'there,' it is much easier for us to imagine that the poor animal has somehow fallen into the 'well of memory,' (or got shut up in the 'storehouse'), and that we are now engaged in fishing him out. It is only when we drop spatial metaphors, and realise that a thing cannot be 'in' the mind unless it is mental in character, that it becomes clear that a dog or any other object that is not mental when we see it certainly cannot entirely change its nature and become mental when we remember it. There are plenty of difficulties and obscurities in the nature of the process of remembering, on any theory. But I am perfectly sure that on no theory are any of these difficulties removed or lessened by supposing that the object or event remembered is in any sense 'in' the mind.

I find this way of thinking constantly appearing in all attempts to describe the Unconscious, as when we are told by the Psycho-Analysts that the content of the Unconscious consists of repressed infantile experiences. No doubt, for their particular practical purposes these metaphors may be harmless and even, up to a point, helpful. But when they are put forward as a serious account of the nature of the mind or mental processes, they become, in my view, misleading and mischievous.

I have left myself no space for a detailed examination of any other case where it is supposed that we must assume Unconscious mental processes. I think there are few of them to which some, at any rate, of the above considerations would not apply. But I cannot help being struck, in reading the accounts of these cases, by the slightness of the evidence

that seems sometimes to be accepted that the mental process really is unconscious. After all, with all our tests, we have in the end to come for our final evidence for the presence or absence of anything in the consciousness of a person to the statements of the person himself. And we all know how easy it is to misdescribe what is really going on in our own consciousness. This is so even with a perfectly honest attempt; and when we take into account what Jowett described as "the amount of good hard lying that goes on in the world," the statements of a neurotic patient do not seem a very certain foundation on which to build our conclusions. Nor, for the matter of that, are the statements of anybody else in all cases. We most of us at one time or another know what it is to have thoughts or feelings which we should be very loath to put into words. But they are none the less conscious for that. This is really a minor point. But apart from that, there are, of course, at any moment many things going on in our consciousness, just as there are many things in the outside world within our field of vision, on which our attention is not focussed. We do not, therefore, think about them; we do not recognise their implications or connect them up with the rest of our experience. And, therefore, we often do not remember that they were there even a few minutes afterwards. But once more they are certainly conscious processes at the time they take place.

These are apparently what Dr. Rivers calls "sub-conscious processes". At least, so I judge by his description of these latter as "processes which only differ from other mental processes in the lesser degree of distinctness and clearness with which they can be observed". And he criticises those who speak of such processes as "failing to recognise that they were only evading a difficulty by clinging to a simulacrum of the conscious, the existence of which was just as hypothetical as any of the constructions of the thorough-going advocate of the Unconscious". Unless I entirely misunderstand this, it seems to me really an amazing statement. For it characterises as purely hypothetical the familiar distinction between the focus and the margin of consciousness, which I should have called an obvious fact of experience which anyone of us could verify for himself with the utmost ease. If I am right, it is clearly a fact of importance for the present discussion, because it means that there are always a certain number of conscious processes going on and a certain number of objects of which we are aware which we may not remember about at a later time. This makes it impossible to say with any certainty that conscious processes at one time cannot be

adequately explained by previous processes which were just as conscious, because we can never be sure about what previous processes did actually occur. We can never assert positively that the explanation of anything must be looked for in something outside the "stream of consciousness" altogether, because we never have exhaustive knowledge of all that is or has been in the "stream of consciousness". And if this is true it certainly weakens seriously the alleged necessity of assuming unconscious mental processes as an explanation.

This, then, is a very brief and inadequate outline of my case against the idea of the Unconscious or of Unconscious mental processes. I cannot accept it because I cannot attach any meaning to it and cannot see any necessity for it. Further, in the modern form, it seems to me to mix up many things or many problems which ought to be kept separate; to confuse, for instance, the problem of the nature of mental dispositions with that of the nature of the act of memory. And I believe that it, at any rate in this form, implies a false view of the nature of mind, of the relation of mind and body, and of the relation of the knower and the known in an act of cognition. But I should not like to leave the subject without a word of tribute to the work of many of the writers who have advocated this idea. Particularly to Dr. Rivers, whose book seems to me, if I may say so without impertinence, one of the ablest and sanest of the statements of modern tendencies in Psychology. Apart from this unfortunate business of the Unconscious, I have learnt more from it than from almost any other recent work on these subjects.

II. By F. Aveling.

I may say at the outset of this small contribution to our symposium that I am largely in agreement with Mr. Field. When he asks, at the beginning of his paper, whether the conception of the Unconscious helps us to understand more clearly what sort of thing the mind is, or what sort of thing the concrete human being is, I am inclined to believe that it does not take us very far, and certainly not to the point of adequate philosophical explanations *per causas*. But I do not agree with him in thinking that it leads to a positively erroneous idea of the nature of the mind and of certain mental processes. It is true that Mr. Field qualifies his statement with the words "as it is used by some modern writers". I shall not undertake to defend any views that may be held as

to the Unconscious; but merely to show that there is a sense in which the conception may be valid and of service in psychology. But, in order to do this, it is necessary to examine at least two of the terms in the enunciation of the present symposium which need definition; and with regard to one of them—the Unconscious itself—Mr. Field finds that he can attach no meaning to it at all. It may be an unfortunate term; it may have led, and lead, to misunderstandings; but it has a meaning for empirical psychologists none the less which it will be my task to consider in the course of the present paper. I shall use the term "Unconscious," then, to signify something which is experiential in character; that is to say, something which at one time actually formed part of experience, and of which the subject of the experience may also have been aware; something which, in appropriate conditions, may (or may again) come to awareness; something, however, which is not now part of awareness. To add to this characterisation of the Unconscious that this something, not now part of awareness, may only be made part of awareness by means of methods such as those of psychoanalysis, is merely to specify a more generic use of the term. This signification "links up" the Unconscious, by way of the Sub-conscious and the minimal, with the maximal degree of awareness. I am not now concerned with that other Unconscious which, of its nature, can never directly form part of awareness at all—that "unconscious psychic" which is essential or dispositional rather than experiential; which yet may be necessary as a concept, as is matter or force in physics or substance in metaphysics, for a final completion and explanation of the science of psychology.

A second term which requires definition is "Psychology"; for it is used ambiguously. It may mean psychology the science in the strict sense; or it may mean psychology in the older, transcendental and metaphysical sense. Mr. Field apparently accepts it in the latter of the two meanings. His universe of discourse is a metaphysical one—and perfectly legitimately so. But the psychologists who find the conception of the Unconscious useful in their scientific work, conceive psychology itself in an empirical, non-transcendental manner. I believe that in such a distinction lies the explanation of the divergence of views as to the value for psychology of the conception of the Unconscious.

There is no need to turn to the region of abnormal or pathological psychology for data to support this conception. Mr. Field appears to allow that it may be of some practical value there; and, when he gets to close grips with his topic,

he examines the case of claustrophobia, cited by Dr. Rivers, as a sample of one of those "occurrences which are supposed to be explicable only on such an assumption". But he implies elsewhere in his paper that this region of the pathological is debarred to the theoretical psychologist as not belonging to psychology in the "proper sense". Against such an implication I may allow myself to make a protest in passing, on the ground that the abnormal in consciousness is as much the subject-matter of psychology as is the normal. If, indeed, the conception of the Unconscious should be one which arises only in connexion with abnormal processes, it would still have rights of citizenship within psychology in the "proper sense". But the conception arises, though perhaps in a less restricted and technical sense, in psychology in connexion with the ordinary processes of everyday mental life; and it is as useful there as it is anywhere else. So we may well limit ourselves in our consideration—though I do not agree that the title of the symposium defines these limits for us—to an examination of the normal processes of consciousness.

I conceive the starting-point of the science of psychology to be an examination of the data of consciousness: *i.e.*, awareness; and its end a statement of the laws of their concomitances and successions. When all the data have been examined—the "objective contents," and the "static" and "dynamic" states—and when the laws have been formulated, it will be found that certain hypothetical elements have been necessarily introduced to complete and round off the whole after the manner of a science. But those hypothetical elements will be—or should be—appropriate to the original data. They should not, unless it is impossible to complete the science otherwise, introduce characters which the original data do not display.

Later on, of course, certain concepts may be introduced and explanatory theory devised to account for the occurrence of the data in question; or for the fact that it has been found possible to state any "laws" in their regard; or for the further fact that empirical beliefs have been discovered among them, the objects of which are trans-empirical. But that is not, strictly speaking, a matter with which psychology, considered as a science, has any concern.

What is, however of the greatest importance to observe is that all the data, or "processes," of consciousness which come to awareness are, in one respect at least, of exactly the same character. They are all mental. The object known, as known, is as much subjective as is the static state of

pleasure or the dynamic state of intention. The latter are as much objective as the first. Indeed, none, properly speaking, as far as they are considered as conscious facts or processes, can be characterised as either objective or subjective, except in so far as these are useful categories for the classification of mental occurrences. They are all without exception essentially mental in character. From the psychological point of view, and regarded solely as conscious processes, the subject-object distinction seems to be out of place. Everything is subject, or everything is object, as you please.

If psychology is to be a science, then, it must keep to this point of view; for that, after all, is no more than the general method of science.

We may find a parallel in the physical sciences. In all these abstraction is made from the fact that the data with which they deal are in reality mental; and these are considered as if they had a real existence in a world indifferent to mind. That is the method of these sciences; and those who profess them do not trouble about its justification, which —as far as they consider it at all—they leave to the philosophers. But, in arranging and explaining the data, considered thus abstractly, each science keeps to its own point of view; each introduces hypothetical elements, where these are necessary, appropriately similar in kind to the original data, to complete and round off the whole; and, finally, each turns to philosophy for an explanation by trans-empirical concepts.

Consider, for example, the flight of an arrow, and that of a bullet fired from a rifle. In the one case, there may be data observable from the moment when the arrow is fitted to the bow-string to that when it is fixed in the target. In the latter case, there may be no such data; but ballistics assigns relative position, as part of the hypothetical data, throughout the whole course of the flight. What has been said as to completion by hypothetical elements is largely, if not entirely, true of the physical sciences taken singly. It is altogether true of them taken as a group. "Physical" occurrences are observed and related; "physical" laws are formulated; and the whole is completed with hypothetical "physical" data, and ultimately with "physical" concepts, the character of which is strictly non-mental.

Psychology, as a science, pursues a similar method. It completes its observations and relating of data with hypothetical elements similar in kind to the original data. And it is here that the conception of the Unconscious naturally arises. Whatever it is, it must be appropriate to the data;

that is, it must be mental, or "conscious". It is no real objection to urge against this conception of the Unconscious that its nature cannot be known, as things are known by inspection; for that is true as well of the physical hypothetical elements—and indeed also of the physical concepts. The Unconcious can only be known by reflexion upon what it does. It provides a nexus, or principle, for the explanation of the processes which occur in awareness. Its nature, then, will be consonant with these; and it will be inferred from these. There is, however, another than the theoretical reason given above for the assertion of the conception of the Unconscious. And it is this. The field of awareness itself is distinguishable into areas or zones of differing degrees of clearness—or, rather, is continuously differentiated in this respect from the point of maximal to a margin of minimal clearness. Direction of the "Attention" can shift the focal point of clearness from one point of the field to another; indeed, can cause to rise into the focus a content which was not at the moment in the field at all, but in Sub-conciousness —as when one is trying to recall, and successfully recalls, a forgotten name. These two observable facts lend support to the conception of the Unconscious as continuous with awareness and the Sub-conscious, and in some respects, at any rate, as obeying the same laws. For the unconscious processes can come to awareness, by the use of appropriate methods, in a similar way to the Sub-conscious processes, and can be made to enter the focal point in a way similar to that in which the marginal processes can.

I am here, of course, referring principally to the Unconscious in the generic sense indicated above, as consisting of that of which we may or may not have been, but are not now aware. In the specific, technical and psycho-pathological sense, the Unconscious cannot thus be directly brought into the field of awareness by any of the ordinary means at the disposal of the subject, or patient. Indeed, as Dr. Ernest Jones points out, "the attempt to explore them (unconscious processes) and make them conscious is always accompanied by manifestations of active opposition on the part of the subject." (Symposium, "Why is the Unconscious unconscious?" *B.J.P.*, Vol. 9, Part 2, October, 1918.) This refers to that group of unconscious experiential processes which, whether racial or personal, apparently lies beyond the power of translation into awareness, or recall, on the part of the subject. Yet, even here, these dissociated processes would still appear to be in continuity with the Unconscious in the generic sense, since, though they cannot be brought to

awareness by the patient, they can become processes in awareness by the use, on the part of the analyst, of methods by which the active opposition of the patient is overcome. And the methods used do not appear to involve any new laws, but only to apply the old ones with good effect.

Mr. Field finds himself unable to accept this conception, and he puts forward the two alternative views, as at least conceivable accounts of the matter; that, on the one hand, consciousness may depend upon the physical structure of the brain and body; on the other, that it may be the function of a relatively permanent mental structure. Philosophically, I might agree with him in accepting one of these alternatives. But the first of these views is inacceptable to the empirical science of psychology as an explanation, because it goes outside the data, and indeed makes use of "data" that not only are not given, but are even supposed to be of a totally different character to those that are given. The second view is no less inacceptable, for it seems to involve the denial that statements of scientific laws are possible in psychology at all. If the webs of antecedents and consequents are not complete, there can be no such statement. I take it that no empirical psychologist — not even the empirical psychopathologist— holds of the unconscious processes that they are in everything *identical* with those which enter into the region of awareness. The use of the term Unconscious would negative any such supposition. But I take it also that no philosopher would conceive of "mental structure," and "function" as something which necessarily precludes the possibility of the empirical conception. Mental structure might conceivably underlie both Awareness and Unconsciousness; and both might be its function. It appears to me that a very old philosophical distinction may usefully be applied with regard to this matter; that the potential must be distinguished from the actual; and that the processes which occur in the region of awareness are the actual analogues of those potential processes which are held to belong to the region of the Unconscious. In how far the potential processes may resemble the actual seems to me to be a rather otiose question—one that should not, and certainly need not, be raised. It may be that they are identical with these save in the property of being "conscious". To suppose that would be to imagine these processes in some respect after the manner in which conscious ideas were imagined in Associationism. It may be that they resemble them in no such sense at all. Or it may be that they resemble—I adopt the distinction from Dr. Rivers's contribution to the symposium already cited—the

instincts, as contrasted with the "discriminative and intelligent" higher processes of awareness.

Now, this last possibility appears to offer some help towards defining the Unconscious in such a way that it will be acceptable both to the empirically methodological psychologists and to those whose principal interests lead them to take a metaphysical view of the question. Every complex of conscious awareness consists of three discriminable elements or aspects. In every conscious complex we may discover cognition, conation, and affection. It is only by abstraction that they can be separated, though any one of them may, at any given moment, dominate the other two. For pure empirical psychology each of these is an element or aspect in its own right, and of equivalent value to any other; for each is a discriminable element or aspect in the given of that experience of which we are aware. But there are discoverable limiting cases in which the cognitive element or aspect so sinks in intensity that the experiencing subject is hardly, if indeed at all, aware of it, the while he is actually and vividly living the experience of an affective state brought about by a stimulus which is capable of producing both. Similarly, the cognitive and affective elements or aspects in a complex may conceivably be minimal—indeed, in certain phases of the act of choice seem actually to be minimal. And the effect which a previous volition (as such) now forgotten (or sunk beneath the level of conscious awareness and functioning as a "mental set") has upon subsequent processes of awareness is well known. Evidence of this kind is abundant in such researches as those of Ach, Michotte and Prüm, and others.

But if cognitional awareness can sink to a minimum, leaving a lived experience of affection; and if conscious volition can become unconscious and still influence the processes which develop in awareness; it would seem that we have some direct evidence that the Unconscious is a valid conception and a useful one for psychology. For, here again, the processes of which we are aware and those of which we are not aware, or have ceased to be aware, seem to obey the same laws, functioning indifferently as antecedents to the same sort of consequents, and *vice versa*. An impulsive act is in this precisely similar to a voluntary act or to an act of choice; the only difference lying in the condition of the voluntary act (that there is prevision of the end); and in that of the act of choice (that the realisation of the volition is conditioned by the appearance of the alternatives between which, and the discussion of the motives according to the

evaluation of which, it is to be made). But the volition may not be a conscious one, and generally is not, when the act of choice takes place. For such reasons as these all three processes (including the impulsive or instinctive) have been classified under the head of volitional acts. Now, instinct is generally supposed to be blind or unconscious in its teleological character; yet it is not too much to say that it has every mark of consciousness, and purposive consciousness, as far as its effects are concerned. So much is this evident that instinct has been accounted for on the ground that it is "lapsed intelligence". Without wishing to adopt that theory, there would seem to be no reason to reject a possible view which would make of it a lapsed conscious awareness of some sort, not unlike that which might be asserted of a consciously (and, originally volitionally) acquired habit which, later on, comes to be carried out automatically and unconsciously. Some such line of consideration as this would allow us to link up what I have distinguished as Unconsciousness in the generic sense with Unconsciousness in the more specific sense in which the term is used by the psychopathologists. And thus, by opposing original instincts and original mere experiences, together with complexes which have been extruded from personal awareness by reason of the many and varied sanctions of civilised life, to complexes which have not been so extruded, we should understand how those conflicts which may issue in the morbid processes studied in psychopathology come to be established in the whole mentality.

Instinct, as a native impulsion anterior to all individual experience, though there may be a cognitive antecedent to energise it, is certainly not conscious until it has functioned. But it links up with conscious volitions through, and in continuity with, "mental set". In other words, there is, or at least can be conceived, a continuity between the volitional processes which occur in awareness and those which do not so occur. And this may most easily be conceived as a continuity of the similar in kind, as well as a continuity due to the fact that both, again, may be antecedents or consequents in similar sequences, *i.e.*, both obey similar laws. Whether actual or potential, then, whether conscious or unconscious, both cognitive and volitional processes exemplify the same laws, and may at least be conceived as in some sense similar.

A parallel line of consideration might be pursued with regard to the affective aspect of the complex; and on this, no doubt, the psychoanalysts lay great stress.

But I need not, perhaps, elaborate further than I have

done to show that the conception of the Unconscious has a value for psychology the science. It is no more than a conception in which sequences which are incomplete to inspection are completed by the assumption of the existence of processes or elements of a similar character, barring the one note of awareness. But these processes or elements can be made actual even as regards awareness. They may therefore be considered as potential processes or elements of awareness. To explain the facts in any other way than by assuming potentially empirical data of a similar kind to that which is given is to step beyond the boundaries of the science. To assume a mental structure capable of functioning because of its tendencies is, for the empiricist, either to assert what has been suggested in this paper or to assert nothing knowable or verifiable. For what is a tendency, and how can it be defined save by referring to that actual towards the realisation of which it is a tendency? To suppose that tendencies cause awareness, using the term in its transcendental sense, or that the mental structure causes awareness through its tendencies, seems, from an empiric point of view, to have far less meaning than to suppose that a hypothetical Unconsciousness causes awareness in the scientific acceptaton of the word cause. For transcendental causes cannot be observed.

And further the criticism aimed at the theory in question by Mr. Field—that it leads to the conception "of the Unconscious as of another conscious person of exactly the same kind as the conscious personality we know, which exists alongside it and every now and then affects it in some way or other, so that to explain an event by referring it to the Unconscious becomes just the same kind of explanation as to say that something was done by John Jones instead of by Tom Smith,"—can only be a valid criticism if it does in fact necessarily lead to such a conception. And it does not, I suggest, lead to that at all if the whole matter is treated empirically; though I admit that it may lead to it if awareness and Unconsciousness and cause are taken in their metaphysical implications.

It can only be because Mr. Field takes the transcendentalist point of view here, and credits empiricists with taking it also, that any such apparent difficulty arises. If Tom Smith who, for the empirical psychologist, is the sum total of processes occurring in awareness, be completed empirically by the sum total of "unconscious" processes which, similarly, are John Jones, the addition of the two will not constitute two "persons," but one complete phenomenal

consciousness—Thomas John Jones-Smith. Indeed, there would not be even one "person" so constituted; for it could hardly be asserted that a phenomenal consciousness, no matter how complete, was a "person". But this conception has, none the less, the advantage of remaining within (at least theoretically possible) empirical limits, and of providing a ground for the establishing of scientific concomitances and sequences, without the necessity of having recourse to metaphysical notions.

I do not wish it to be understood that I in any way imply a denial that metaphysical conceptions may be necessary for a final explanation of the facts. Mental structure and tendencies, brain and body—or, better perhaps, the substantial individual which we call "man"—may, in the last resort, be the only principle by which the occurrence of experience, or awareness, can be accounted for at all. I believe that to be so; that psychology, like any other science, must be completed by philosophy; and that its data must be ultimately interpreted by means of metaphysical concepts. But I also hold that it is, or can be treated as, a science. And, in that aspect, it would appear that a good case can be made out for the conception of the Unconscious.

In the course of the present paper I have made use of spatial metaphors, and therefore have come under the condemnation of Mr. Field that there is clearly something wrong with my conception of the mental. My plea must be that the metaphors in question are convenient ones; that analogies are not out of place in treating a matter of this kind; and that "levels," "regions," etc., are given within experience—else there could be no awareness of them at all. Moreover I have not used them with a spatial implication. They are metaphors. In a similar (though again not, of course, in a spatial way) Mr. Field himself uses the metaphysical conception of "activity" to justify his conception of "mental structure," as expressing itself in a particular kind of activity. That also seems to be a metaphorical use of the term; and it, too, would be impossible unless some such thing as the "consciousness of action" were given in experience.

I am also conscious of the fact that, in drawing the distinction between the potential and the actual, I may be met with the objection that I am going beyond the data of experience, and attempting to solve a difficulty as a realist might attempt to solve the difficulty of the problem which arises as between things and things known. But I do not consider that to be a serious objection.

I am suggesting throughout that the Unconscious is a useful conception in the science of psychology. To do this I have endeavoured to point out that *something* must be supposed in the place of processes which do not occur in awareness to explain what sometimes (indeed generally) does happen in awareness. I have underlined the conception of psychology as an empirical science, and pointed out that it must be governed by the method that is imposed upon sciences which profess to be empirical. I have put forward instances to explain why the Unconscious is postulated as a conception to complete the science of psychology without doing violence to its method. And I believe that the evidence which I have submitted is sufficient to justify the conception as both legitimate and of value in that sense in which it may be applied to, and used as explicative of, the observed facts.

III. By John Laird.

At this time of day, and with present fashions what they are, it may seem absurd even to raise the question of our symposium. The triumphs of the New Psychology—as exciting, we are told, as *The Origin of Species*—may seem to have answered it beyond all cavil, so that objections are futile and doubts *démodé*.

This view, I believe, is profoundly misleading. The new psychologists, to be sure, assume the existence of the unconscious, both as a storehouse and as a factory; they profess to discover significant and thrilling contrasts between its more accessible and its darker regions—all of which is, somehow, vastly important. This, however, does not prove that the unconscious is a valuable conception. Properly speaking, indeed, it may not be a conception at all. Is it intelligible? Is it regulative? Does it compel any specific deductions? Does the evidence imply it logically? So far as I can see, the new psychologists need not answer any one of these questions in the affirmative, and their discussions of all of them are either perfunctory or non-existent. Fundamentally, this notion, such as it is, seems to be only *permissive* in use. The new psychologists need to assume something retentive and capable of various developments; something, moreover, which, quite plainly, is not conscious and yet seems to play an important (and perhaps a dominant) part in our mental history. This they call the 'unconscious,' and we need not

quarrel with them for doing so ; but there is a case for dispute, surely, if this negative name is used to conceal and not to assert our ignorance, if this permissive thing is proclaimed to be a key-conception, if this nest of problems is taken to be a squadron of solutions to them, and if positive properties are assigned to an enigmatic somewhat for no better reason than simple light-heartedness.

If this be so, it is plain that the subject of our symposium really is important—and important for reasons that have no peculiar connexion with metaphysics. In its permissive sense, the unconscious is not even a working hypothesis. It is only a proclamation that the work is to go on irrespective of certain theoretical difficulties ; but if it were a working hypothesis, it would still be the duty of empirical psychologists to examine it with the utmost rigour. The approach to the sciences is decked with bright ideas, but there is no science until these ideas are put to the proof. The evolution of species, say, or the transmutation of the elements had to be thought out in order to become something more than an attractive and stimulating notion, and it would be foolish of us to expect that the growth and the sublimations of the 'unconscious' will reveal themselves, in a fury of infantile 'exhibitionism,' to more impatient eyes.

Our problem, of course, is not the value of the New Psychology, but the specific value of the New Unconscious ; and although explanation would be needed, it would be quite consistent to hold that the former is epoch-making and the latter pernicious. Keeping to the latter, then, we have to ask whether any intelligible notion of the unconscious can be put forward, and, if so, what. I can make nothing of Mr. Aveling's 'experiential' somewhat, of which we *may also* have been aware, which responds so amiably when we 'link it up,' but fails to recognise the difference between *being* an experience and *having been* one. Therefore, with regret, I turn to other theories, and apart from vague and irrelevant references to Leibniz's *petites perceptions* and the like, I find that the favourite account of the unconscious is the one which Mr. Field has quoted from Dr. Jones. Thus Bleuler[1] states that he 'understands by the unconscious all those operations which are in every respect similar to the ordinary psychic ones with the exception that they cannot become conscious' ; and many of the others say the same thing.

This definition really is preposterous. It is just like Mr.

[1] Quoted by Varendonck, *The Psychology of Day-Dreams*, p. 19.

Churchill's 'cannibals in all respects except the act of devouring the flesh of the victims'. It is worse than epiphenomenalism. As we all know, our consciousness is only a part of a complicated pattern of processes, very imperfectly known, although known to have some connexion with the cortex and, in certain cases, to have more specific connexions with definite cortical areas and with the optic thalamus. It is therefore a permissible, although a rash and improbable view that consciousness is only the upholstery of this self-moving machine, and that the combustion engine is outside consciousness altogether, but it is not at all permissible to contend that there is really no difference in the case. What in the world would consciousness be if it had no shreds of character of its own? And is there anything in nature which, so to speak, is pure character, although devoid of distinctive character, wholly bereft of power, and incapable even of indicating that it has *some* peculiar properties and effects of its own? Surely there is irony in the thought that this grotesque resurrection should follow the obsequies of epiphenomenalism so promptly and so confidently—irony and something more.

I should like to call attention, too, to another remarkable circumstance in the present affair, and I shall try to elucidate it by referring again to Dr. Jones. *À propos* of Freud's 'metapsychology,' this author, after referring to Freud's 'convincing logic' in support of the unconscious, proceeds to say that Freud also raises 'the difficult question of the precise difference between an unconscious idea and a conscious one, and what happens when the former is converted into the latter'.[1] What puzzles me is the state of mind of anyone who does not see that this 'difficult' question is the same question precisely as the easy one. An 'unconscious' that has not made up its mind about the 'difficult' question is simply a pattern in ink, and our problem, as I understand it, is, quite precisely, whether any sort of intelligible answer could be given to this single question—whether it be easy or whether it be difficult.

Some of the difficulties in the case, I think, may be easily exaggerated. One might try to score a debating point, for example, by pointing out that although the *similarity* between the conscious and the unconscious is the burden of these definitions, the *difference* between the two is commonly taken to be the most important result of the New Research. This apparent contradiction, however, is less formidable than

[1] *British Journal of Psychology* (Medical Section) Vol. i., Pt. i., p. 65.

it seems. It is only opposites of the same kind that can, properly speaking, be contrasted. We contrast red with green, not with the multiplication table. And although the point needs clearing up, especially in view of the numerous psycho-analytic 'explanations' which make the unconscious, reputed a-logical, behave (on occasion) in a thoroughly reasonable manner, it need not involve a flat contradiction.

Again, there is no demonstrable contradiction in the general term 'unconscious mind' if this term means simply 'that in the mind which is *de facto* unconscious'. No doubt it is easy to manufacture hopeless difficulties of this kind (as Mr. Aveling does when he says that the unconscious must be 'mental or "conscious"'), but usually, when we speak of a mind, we ascribe dispositions, tendencies, potentialities, and capacities to it. These are dangerous terms, to be sure, but they are not unmeaning, and the facts they purport to describe are seldom, if ever, conscious facts. On the other hand, the New Unconscious, so far as I can see, has neither elucidated these conceptions, nor added to them on any point of principle. The New Psychology, we may concede, has shown that we have many tendencies which were hitherto unsuspected or ignored, and that many of our dispositions have sinuous, sinister, and surprising effects. But this is another story, however important it may be. The results of the new psychology would neither be altered nor gainsaid if the new unconscious were in fact physiological, or even if consciousness itself were ultimately a quality that our nerves can sometimes assume.

In saying that terms like capacities or dispositions are not unmeaning, I do not wish to assert that they are indispensable from every point of view. If, for example, the concept of 'mnemic causation' could be accepted and it were agreed that a *remote* event might be the *immediate* antecedent of a present process, much that is plausible in these concepts would cease to be so. The need for 'traces' would disappear, and the ripening and developing of these dispositions would be the only circumstance that required attention. In view of what we learn about time from modern physics it would be rash to flout this possibility; but if we assume, with common sense, that an idea which has been followed by other ideas cannot have any direct influence after the interim, we are forced to assume some sort of continuing disposition in order to bridge the gap. On the other hand, we simply do not know what this disposition is either in ordinary 'foreconscious' memory or, let us say, in Dr. Rivers's case of claustrophobia, any more than we can say what the

knavery of a sleeping rascal actually is. All that we know is that the rascal would be a slippery customer under other circumstances.

It follows, however, that we may speak, thoroughly intelligibly (although barbarously), of unconscious 'trends' and 'impulsions' and 'urges' as well as of unconscious 'complexes' of these; for these terms mean only that there is something persistent but unknown which is capable, with or without internal development and rearrangement, of forming a specific bond of connexion between certain vanished ideas and emotions on the one hand, and, on the other hand, certain *other* ideas and emotions which appear after an interim. It may very well happen, however, that there is *no* intelligible meaning in speaking of unconscious wishes, or desires, or memories, or expectations, or intentions, or emotions, or resolves, or ideas, and I wish to consider this question in somewhat greater detail.

The theories of the Behaviourists—whom I take to be the Newest Psychologists—have shown us, no doubt, that a certain meaning (perhaps even a certain precision) can be attached to these terms provided we admit that there is no such thing as consciousness. This, however, is precisely what many of us cannot admit at all. We recognise, of course, that our consciousness is intimately allied with bodily reactions, and perhaps that it could not arise without an affector beginning, or persist without an effector continuation; but we do not and cannot admit that the *only* difference between being awake and being anæsthetised is a difference in bodily reactions, or that human happiness or human misery would be worth a moment's consideration unless they were, most emphatically, conscious happiness and conscious misery. If this be so—if consciousness and unconsciousness are, quite certainly, not the same—it is quite impossible, I think, to qualify any of the terms I have mentioned by the adjective 'unconscious' without stultifying ourselves completely; and Behaviourism does not help us in this particular.

On the other hand, there are certain distinctions within consciousness which may seem to throw light on the problem, and these require most careful scrutiny. The chief of them, I think, are the distinctions between reflective self-consciousness and consciousness *simpliciter*, between consciousness which is connected and consciousness which is dispersed, between focal and marginal consciousness, and between schematic and detailed consciousness. I shall examine these distinctions, then, in this order.

(1) There is an idea abroad, often left unchallenged, that a

man is conscious only of that which he avows to himself upon reflexion. This idea seems to me simply false. For the most part, it is true, we have a general, unexamined, uninterrogated notion of the way our thoughts are drifting, but self-conscious avowal or reflective self-questioning is the exception and not the rule. It is beside the point, therefore, to urge that a man may do shady things without admitting to himself that they are shady.[1] Of course he may, but it does not follow that these actions were unconscious. All that follows is that the man did not consider or did not notice some of their moral aspects. Unselfconscious thinking, similarly, may and does occur; but it is *un*conscious consciousness, not un*self*-conscious consciousness, that is the trouble. This distinction, consequently, does not seem to help us.

(2) Each of us knows, from the plainest experience, that the course of his thoughts is sometimes tense and concentrated, sometimes rambling, ambling and dispersed. The player's wits are fiercely preoccupied; the spectator's thoughts may go wool-gathering or building castles in Spain; and drugs like scopolamine (or mere sleepy-headedness for that matter) turn all our ideas into bemused stragglers. This, however, is no proof that the stragglers are unconscious. It proves only that they are out of the ranks; and if the stragglers, as in the Beauchamp case, sometimes mass themselves into loosely organised bands of their own, this, in itself, need not affect the general principle.

No doubt, if we could show, as the new psychology has gone a long way towards showing, that there are *some* definite laws for the stragglers' wanderings, our results would be very important, but they need not affect the question before us. To say that dispersed ideas are 'split off' is only to say that our thoughts are disconnected. In this sense, and in this sense only, ideas may be 'split off' into groups, blind for the time being to one another's existence (as in 'alternating personalities' and the like), and, of course, there is no logical contradiction in supposing an infinity of co-conscious trains of ideas connected with every living body, just as there is no contradiction in supposing an infinity of invisible auras round every human head, or an infinity of guardian angels sustaining and controlling every human life. These suggestions, however, leave the problem of the 'unconscious' precisely where it was. The difficulty about co-consciousness is not that it is unthinkable but that the evidence for it is lacking. We are told that it is there, and when we go into the ques-

[1] *Cf.* Russell, *The Analysis of Mind*, p. 32.

tion, we find that only *one* consciousness is in the house at any given time, and that the other must be supposed to be concealed somewhere in the neighbourhood. It will come if you 'tap,' if you open its coffin, if you make the proper mesmeric passes. Meanwhile, however, it is *not* there (although you think it is doing something) and when it *is* there you may look in vain for the *other* housemate.[1]

This way of speaking, to be sure, would be quite legitimate if we were dealing with things like Mr. Aveling's bullet which remain the same whether they are present to our experience or not. The trouble about ideas, and wishes, and the like, however, is precisely that they do not seem to be anything at all, *except* when they are present conscious facts. A dead body is at least a corpse, but a vanished idea is simply nothing. It was and is not, just as that glorious putt which you made last year was and is not. To be sure, this putt of blessed memory had important after effects. You have never been the same man since; but you need not suppose, surely, that you have been putting ever since, in your bed and at your meals, or, if not putting, then *quasi*-putting, or putting 'minimally,' in a word unputtingly. And although you may say that you often miss your putts because of the co-putting that is going on inside you, you need not expect to convince everyone that you are either 'scientific' or 'empirical' when you say such things. Instead of that you are a 'metaphysician' of the baser sort, for you are trafficking in occult verbiage.

Therefore, I do not think that this distinction between concentrated and dispersed proves what it is supposed to prove.

(3) The distinction between the 'centre' and the 'margin' of 'consciousness' is a matter of empirical observation, and any psychologist who neglects the margin does so without excuse. What is more, the outskirts of this fringe are undoubtedly nebulous and impalpable. It is probable, therefore, that the margin reaches further than we commonly think, and certain that we cannot usually tell precisely where

[1] A certain type of co-consciousness, no doubt, is quite familiar in ordinary experience, *e.g.*, when, brushing my coat, I look out for a tramway car and converse with a friend the while. There is sufficient evidence, too, of a certain exaggeration of facts of this kind, in some of Janet's hysterical patients. This, however, does not seem to me to affect the principle of what I have said, and Dr. Prince's specific attempt to prove literal co-consciousness (*i.e.*, two *completely* distinct mental series, connected with the same body, *both* of which are actually conscious at precisely the same moment) seems to me to be inconclusive. (See *The Dissociation of a Personality*, pp. 321-322.)

it stops. This circumstance, however, carries us but a very short way. If we cannot discern where precisely our vision ends, we do not conclude, on this account, that we can see with the back of our heads. Indeed we know, in this case, that the margin does not extend very far. Similarly we recognise, in this case, that there is a perfectly definite and inescapable difference between the things that are about to be seen, or that we may readily see, and the things that we actually do see, marginally or otherwise. I do not wish to argue that the penumbra of visual consciousness is precisely similar in all relevant respects to all other conscious penumbræ, but I see no reason for supposing any profound difference in principle, and until some such reason is shown I shall continue to believe that (although there may be limited debatable regions) in general we have quite sufficient reasons for asserting the absence of consciousness as well as for asserting its presence, that we have no reason whatever for using the 'margin' as a dumping ground for anything which our theories may happen to find convenient, and that, in so far as the 'fore-conscious' simply describes things which we may readily call to mind, it need not be marginal at all.

(4) The terms 'marginal' and 'schematic' are not equivalent (although the margin is schematic and not detailed), because the *whole* of my consciousness, both centre and fringe, may be vague and schematic. Cases of this sort abound. The novel which as yet is but dimly foreshadowed in the intense inane, the *mot juste* which seems so near to us and is yet so hard to attain, the oration which, before it is made, is only a sort of dim glow in our souls—these and similar experiences offer unmistakable instances; and it is easy to misinterpret them. No one seriously believes, I fancy, that my schematic notion, say, of the *Vedanta*, actually contains the *Vedanta*, implicitly or otherwise. Even to suppose so would be to suppose nonsense. The *Vedanta* is not 'buried' in this grave; but many seem to suppose that if my schema of a novel turns into a novel, or my schema of an oration turns into an oration, then, somehow or other, the novel or the oration was unconsciously present in the schema all the time; and if the schema seems to hover over something momentarily forgotten but familiar to the feeling, nearly everyone speaks of buried and familiar ideas struggling to see the light of conscious day.

In my view, the schema of the familiar forgotten thing no more contains the familiar forgotten thing, buried and struggling, than my schema of the *Vedanta* contains the

Vedanta, buried and struggling. The schema of my oration, so carefully planned beforehand, guides me as I speak; it feels familiar, perhaps, and even satisfactory; it feels different from other schemata of other orations; but it is not the oration itself and it does not contain the oration. There is *no* oration until I give it, no idea until I think one, no expression until the expression comes. The schema (which we may suppose, for simplicity's sake, to be the whole fact of consciousness when I begin my oration), may prompt me continuously as I go on to explain myself in detail, and the oration may be a logical or associative development from this schematic nucleus; but this is no proof, or even the beginnings of a proof, that these subsequent ideas or expressions literally possessed a previous existence of any kind. A schematic idea is just a vague glimpse, and a vague glimpse does not embrace details, metaphorically or otherwise.

These contrasts within consciousness, therefore, neither compel us to admit the 'unconscious' (or a 'buried' and 'concealed' consciousness) nor elucidate the manner in which an idea, or wish, or intention could be unconscious and still be itself; and I do not think that more helpful suggestions than these ones are to be found. In particular, Mr. Aveling's suggestion that feelings or emotions may persist a-cognitively seems to me quite useless and forlorn. It is simply a mistake, I think, to use 'consciousness' and 'cognition' as convertible terms, or to suppose that the tripartite division is a division of anything except conscious states; and the best psychologists deny the existence of blind strivings or sightless feelings. These phrases, it is true, may describe *something* but they do not describe conation or feeling-tone.

What I have been saying, I think, is not at all 'metaphysical'. It might be better if it were, but it is not; and the point which I wish to make in conclusion, while it traverses Mr. Aveling's definitions of 'psychology,' implies nothing more recondite than common sense. In speaking of 'consciousness' and its 'margin' and so forth, I have been using current phrases which are plainly elliptical; and my argument has lost something of clearness on this account. Strictly speaking, of course, the 'margin of my consciousness' is the 'margin of the field of which I am conscious'; and so in other cases. What I remember, for example, is a past event of which I am at present conscious; what I expect is a future event which I believe to be about to occur; and what I call an 'idea' describes a complex state of affairs in which a conscious process on my part—an event in my psychological history—is cognitively related to some other event which may have occurred or may be about to occur at

an earlier or at a later date than this conscious process of mine, and which may or may not be part of my own life-history.

Plainly, then, the problem of memory is not how a *past* event has persisted or what a future event is *now*, but how I can look back at a past event or (in any way) look forward to a future one. This 'looking,' it is clear, is not past looking or future looking, but looking *at* the past or looking *at* the future. It occurs just when it does occur. It is a flash which does not persist, although, as is usual in the case of flashes, a similar flash may recur. The past event to which we return in memory, on the other hand, is over and done with when we look back at it; and it remains over and done with however frequently we look back at it.

Now the process of looking, whether forwards or backwards or under our noses, is a passing event and logically similar to any other passing event (say the passing event of walking or jumping), and although these events have consequences for our subsequent history, it is nonsense to say that *they* persist. We learn to walk by walking and to jump by jumping, but no one supposes, on this account, that invisible processes of unwalking walking and of unjumping jumping, and of every other action that we learn to perform, must continue without a moment's intermission in order to account for the fact of learning; or that the people who learn to 'skate in summer' spend the whole of the cricket season practising a 'buried' course of unpatinating patinations. Whatever goes on, it is not this, and I should be sorry for the physiologist who did not try to find out what really does go on. The psychologist, no doubt, has a harder task, and he has a much better excuse for taking refuge in metaphors, but he ought not to take metaphors literally, whatever the provocation; and although the use of these metaphors may not seriously affect a great many of his enquiries, there is an ugly look about them even when they seem to be harmless. So far as I can see, unconscious consciousness is in precisely the same position, logically, as unthinking thinking, or unwalking walking, and we have no more right to say that wishes or ideas are unconscious, or that 'something of the same nature' is unconscious, or that 'something similar in all respects except in the respect of being conscious' is unconscious than we have for asserting that walking goes on when we do not walk, or that 'something of the same nature' goes on, or that 'something goes on which is identical with walking in all respects except in being pedestrian'.

It is worth our while, I think, to remember this.

III.—ARE HISTORY AND SCIENCE DIFFERENT KINDS OF KNOWLEDGE?[1]

A Symposium by R. G. Collingwood, A. E. Taylor, and F. C. S. Schiller.

I. By R. G. Collingwood.

From the point of view of the theory of knowledge or logic, must a distinction be drawn between two kinds of knowledge called respectively History and Science?

Such a distinction is usually made: we shall argue that it is illusory. It is implicit[2] in the whole drift of the Platonic philosophy, though Plato nowhere, I think, states it clearly. But Aristotle not only states it, but states it in a way which, though only incidental, implies that it is familiar. In a well-known passage of the *Poetics* he remarks that poetry is more scientific[3] than history, because poetry deals with the universal, for instance, what a generalised type of man would do on a generalised type of occasion (and this, he implies, as *knowledge of the universal*, is science), whereas history deals with particular facts such as what, on a particular occasion, a particular person said. History is thus the *knowledge of the particular*.

I. The distinction between history as knowledge of the particular and science as knowledge of the universal has become common property and is in general accepted without question. We propose to criticise it: and as a preliminary, we shall indicate two difficulties which we shall not follow up.

[1] Contributed to the Joint Session of the Mind Association and the Aristotelian Society at Manchester, July 14th-16th, 1922.

[2] I would suggest, for instance, that just so far as Mr. H J. Paton (*Proc. Arist. Soc.*, 1922, pp. 69 *seqq.*) is right in identifying *εἰκασία* in Plato with art, so far *πίστις* is to be identified with history, as cognition of the actual, but only *γιγνόμενον*, individual.

[3] *φιλοσοφώτερον*. I need hardly remind the reader that what we call science Aristotle regularly calls *φιλοσοφία*, a usage long followed in this country and criticised rather spitefully by Hegel. What we nowadays (having given in to Hegel) call philosophy Aristotle calls *σοφία*, *θεολογία*, or *πρώτη φιλοσοφία*.

(*a*) It implies a metaphysical distinction between two kinds of entity, a *particular* and a *universal*, such that any cognition may be knowledge of the one in isolation from the other. This dualism is precisely the doctrine which Plato attacked in the *Parmenides* when he pointed out that the universal, thus distinguished from the particular as a separate object, loses just its universality and becomes merely another particular. The mediæval nominalists attacked it again, in the form in which the realists held it: and Berkeley once more attacked it in the doctrine of abstract ideas. Any one of these three arguments could be directed with disastrous effect on the metaphysical groundwork of the distinction between history and science: but we shall not undertake this task because the arguments in question are purely destructive, and like all destructive arguments would be waved aside as mere examples of the 'difficulties' which seem only to stimulate the faith of the believer.

(*b*) We might drop metaphysics and appeal to experience, which clearly enough shows the instability of such a dualism. Wherever people have distinguished science and history as different kinds of knowledge they have tended to degrade one into the position of a pseudo-knowledge and to erect the other into the only real knowledge.

(i) In Greek thought science or knowledge of the universal is real knowledge and history or knowledge of the particular is only half-knowledge. For Plato the particular is midway between being and not-being, and therefore our best possible cognitions of it are midway between knowledge and ignorance. They are not knowledge: they are mere opinion. For Aristotle the qualification of poetry as more scientific than history implies that poetry (and therefore *a fortiori* science) comes nearer to satisfying the ideal of knowledge than history does. This position became traditional, and crops out in a curious way in the nineteenth century. It was common in that period to propose that history should be elevated to the rank of a science: which meant that it had hitherto not been a science because it only recognised the particular, but that now this reproach was to be removed, and after a long apprenticeship spent in the proper Baconian way in collecting facts history was to be promoted to the task of framing general laws, and thereby converted into a science fit to take its place among the other sciences like chemistry and mechanics. This proposal, to redeem history from its degraded infra-scientific position, became part of the regular programme of nineteenth-century empiricism and positivism, and the science into which it was to be converted

was variously entitled Anthropology, Economics, Political or Social Science, the Philosophy of History, and Sociology.

(ii) The opposite tendency has been late in appearing, but it has made amends for its lateness. The chief feature of European philosophy in the last generation has been that movement of reaction from nineteenth-century positivism which has tended to degrade science into a false form of knowledge and to find the true form in history. The metaphysical notion of reality as process, movement, change, or becoming has had its reverse (perhaps really its obverse) side in an epistemology which places history at the centre of knowledge. In this, implicitly if not explicitly, the schools of Mach, of Bergson, of James, and of Croce agree: and even more plainly they agree in holding that science is not knowledge at all but action, not true but useful, an object of discussion not to epistemology but to ethics. Any cognition (such seems to be the Berkeleian principle common to these schools) must be of the particular, and must therefore be history: what is called a cognition of the universal cannot be a cognition at all but must be an action. They do not all intend by this analysis to 'degrade' science in the sense of denying its *value:* for it is, they maintain, *useful:* what they deny is simply its truth.

Experience shows the difficulty of keeping the balance even and the temptation to identify the genus knowledge with one of its species, thereby reducing the other to the position of an expedient towards knowledge or an inferior kind of knowledge. But no one who really wishes to maintain the dualism will let this deter him. Grant that every one from Plato to Croce has failed to maintain it, *he* will not fail but will stand by the very simple doctrine that knowledge is a genus with two species; knowledge of the particular, history, and knowledge of the universal, science. This simple faith in the possibility of maintaining a dualism by sheer will-power, undeterred by the spectacle of the bleaching bones of previous adventurers, is left untouched by the expressions of a disillusioned scepticism. We shall not pursue this line of criticism, but shall try simply to describe how the scientist and the historian work, in order to see whether we can detect a fundamental difference between them.

II. It is commonly assumed that what the scientist does, in virtue of which he is a scientist, is to generalise. Everything else which he may do, it is thought, is (in so far as he is a scientist) a means to this end. When it is achieved his work is done and there is nothing more for him to do except to go on and frame a new generalisation. That is the

meaning of the common saying that science is the knowledge of the universal. Is it true?

As a common opinion it may be countered with another. Generalisations can be learnt by hearsay or reading: for instance, you may learn by heart the list of fossils characteristic of a certain horizon by simply getting them up from a book. Now common opinion holds that a man may be book-learned in a science and yet incompetent in it. A geologist may know the names of fossils, but if we find on putting him down in front of an actual landscape or in an actual quarry that he cannot give us a geological account of this particular object, we say that he is an impostor. He can repeat, it may be, all the generalisations which (we generally think) constitute the *corpus* of geological science, but if he cannot apply them he is no geologist.

Friends and enemies of the natural sciences agree in thinking the *application* of generalisations to be characteristic of them, and so it is, but not in quite the way that is generally thought. 'Science' is praised or despised for its practical or economic value, and the geologist is respected or scorned for being able to tell us where to look for coal. It is implied that geology means not merely knowing generalities but interpreting particular facts in the light of these generalities: being able to say 'my geological learning leads me to believe that there is coal just below this sandstone'. And it is implied that the person who says this is more entitled to the name of geologist than one who just reels off general statements.

The common view of science as essentially useful or utilitarian is not wholly erroneous; it conceals an important truth, namely that a scientist is only a scientist *ἐνεργείᾳ* when he is interpreting concrete facts in the light of his general concepts, and that the framing of these concepts, if regarded as something distinct from the application of them, is not the end of science but the means. The geologist *ἐνεργείᾳ* is the man who is occupied not in repeating, nor even in inferring, generalised truths, but in looking at country with a geologist's eye, understanding it geologically as he looks at it, or 'applying' his geological concepts to the interpretation of what he sees. To possess these concepts without so applying them is not (as the view which identifies science with generalisation would imply) to be an actual geologist, but only at most to be a potential geologist, to possess the tools of a geologist without using them. But we are here in danger of a serious mistake. The potential geologist is only a mythological abstraction: he cannot really exist: for where

the 'tool' is a concept and the 'use' of it is the interpretation of individual fact by its means, the tool cannot be possessed in idleness. That would be to strain the metaphor. Interpretation is not the employment of a previously-constructed tool (concept) upon a separately-given material (fact): neither the concept nor the fact is 'possessed' (*thought* and *observed* respectively) except in the presence of the other. To possess or think a concept is to interpret a fact in terms of it: to possess or observe a fact is to interpret it in terms of a concept.

Science is this interpretation. To live the life of a scientist consists in the understanding of the world around one in terms of one's science. To be a geologist is to look at landscape geologically: to be a physiologist is to look at organisms physiologically, and so on. The object which the scientist cognises is not 'a universal,' but always particular fact, a fact which but for the existence of his generalising activity would be blank meaningless sense-data. His activity as a scientist may be described alternatively as the *understanding* of sense-data by concepts, or the *realising* of concepts in sensation, 'intuiting' his thoughts or 'thinking out' his intuitions. In this process he recognises the objects before him as being of this or that kind: and sometimes this recognition results in the discovery that they are economically valuable, that is, it serves as a basis for action. That is the truth which underlies the idea of science as essentially utilitarian: but if we are to use technicalities we shall say that utility is not its *essence* but its *accident*, or at most its *property*, since ability to use one's world perhaps follows necessarily from understanding it. And every science has the same character: not only geology and physiology but even what we are accustomed to consider the most abstract sciences. Thus, to be a chemist consists not in knowing general formulæ but in interpreting particular changes which we observe taking place by means of these formulæ: the science of mechanics consists in the similar interpretation of observed motions: even mathematics does not consist of abstract equations and formulæ but in the application of these to the interpretation of our own mathematical operations.

A distinction is often made between the particular and the individual, the former as a mere abstraction, the latter as the concrete fact, synthesis of two opposite abstractions, the particular and the universal. If we must conform to this usage we shall put our contention by saying that there is no such thing as knowledge either of the particular or of the universal, but only of the individual: and that the

sense-datum (pure particular) and concept (pure universal) are false abstractions when taken separately which yet, as elements in the one concrete object of knowledge, the individual interpreted fact, are capable of being analytically distinguished. This may be illustrated by the fallacy of inductive logic. The inductive logician assumes that the task of science is to generalise, to frame universal laws; and that its starting-point is the facts of ordinary observation. The problem of inductive logic then is how, from the particular facts, do we reach the universal law? It tries to describe this process in detail: but when it has done so one cannot help seeing that the alleged particular from which it started was never a pure particular but was already steeped in generality. The process ought to have begun with the pure uninterpreted sense-datum. It never does so begin in the descriptions of inductive logicians, for two excellent reasons: such a pure sense-datum does not exist except as an abstraction and therefore cannot be the concrete starting-point of a process, and if it did exist one could never get beyond it to reach the universal. So the inductive logician makes the process begin with the carefully staged experiment or intelligently recorded observation, which is not a *particular* at all but an *individual*, a concrete fact bristling with conceptual interpretations; and from this point, which already contains and presupposes the concept, he proceeds to 'induce' the concept he has surreptitiously presupposed. How, after this, he has the face to accuse syllogistic logic of *petitio principii* remains a mystery.

The scientist's aim is, then, not to 'know the universal' but to know the individual, to interpret intuitions by concepts or to realise concepts in intuitions. The reason why it has so often been fancied that his aim is to form generalisations is probably that we expect science to be contained in textbooks, much as we expect art to be contained in pictures. Art is to be found not in pictures but in our activity which has pictures for its object: and science is to be found in our activity which uses scientific textbooks, not in the textbooks themselves. The teacher who puts a textbook into the hands of a student must be understood as saying: 'I give you not science, but the key to science: the information here printed is not science, it is something which when you find out how to use it will help you to build up in your own mind an activity which alone is itself science'. It is only because this is so obvious and so continually goes without saying that we habitually overlook it.

III. The scientist generalises, certainly: but generalisation

is subordinate to his real work as a scientist, the interpretation of individual fact. But the historian does not remain at a level of thought below generalisation: he generalises too and with exactly the same kind of purpose. Such generalisations as charters, mediæval scripts, types of handwriting characteristic of the early fourteenth century, guild institutions, and so forth, go to the interpretation of a scrap of parchment which fits into its place as a link in the history of a town precisely as fossils, Jurassic fauna, shells peculiar to the Portland beds, and so on, are the concepts through which a geologist works out the geological history of a valley. Of late, the historian's concepts have tended increasingly to group themselves into what seem to be independent sciences, palæography, numismatics, archæology and so forth. If, as is mostly the case, they do their work better for being thus incorporated into chartered societies, well and good. But their work is the interpretation of individual fact, the reconstruction of historical narrative: and there is a certain danger that the archæologist, under the influence of the false theory of science which we have criticised, may forget this. He may even think that poor old history has been quite superseded by his own science and others like it, whose aim is not to individualise but to generalise: to reach conclusions not in the form 'we can now assert that Agricola built this fort' but in the form 'we can now assert that Samian bowls of shape 29 went out of use about A.D. 80'. The latter is certainly the form in which the conclusions of many valuable monographs appear: but that is just because the monograph as a whole is only an incident in the scientific lives of its writer and readers, an incident whose importance lies in its bearing on the interpretation of individual facts. Monographs are not archæology: or if they are, then archæology is a false abstraction and we must say monographs are not history, since history is the concrete activity which produces and uses them.

The nineteenth-century positivists were right in thinking that history could and would become more scientific. It did, partly as a result of their work, become at once more critical and trustworthy, and also more interested in general concepts. But its interest in general concepts, reflected in the rise of archæology and such sciences, was the interest of a workman in the improvement of his tools. History did not subordinate the determination of facts to the framing of general laws based on them; that idea was part and parcel of the inductive fallacy. It created within itself new bodies of generalised thought subordinated to its own

supreme end, the determination or interpretation of individual fact.

IV. The analysis of science in epistemological terms is thus identical with the analysis of history, and the distinction between them as separate kinds of knowledge is an illusion. The reason for this illusion is to be sought in the history of thought. The ancients developed a very much higher type of scientific than of historical thought: such sciences as mathematics, physics, logic, astronomy, etc., in the hands of the Greeks attained a pitch of excellence which history did not rival till the seventeenth century. Their philosophical reflexions were therefore concentrated on scientific thought and not on the less remarkable achievements of history: and from that time till the nineteenth century a lack of balance between the epistemology of science and that of history continued to exist. The result was that in the theory of science attention has always been drawn to the concepts or principles of interpretation according to which the active work of thought proceeds, while the theory of history has contented itself with attending to the finished product of thought, the fully-compiled historical narrative. This is the root of all the alleged differences between history and science. Thus it has been said that science predicts, whereas history only records the past. That is untrue (geology records the past, history predicts that green-glaze pottery will be found in a mediæval ruin) except in the sense that what we arbitrarily call history—the finished narrative when the historian has stopped working on it—is complete and immovable, while what we arbitrarily call science (the mere abstract generalisation) is an early stage in the process of thought which looks forward to its own completion in what inductive logic calls verification.

Again, it is said that the mainspring of science is critical thought, that of history authority. That again is wholly untrue unless we are speaking of *incipient* science and *completed* history: for every kind of work is critical so long as the conclusion is not yet reached, and every kind dogmatic when it is. A working historian is critical in all the same ways as a working scientist, and a scientist who has come to a conclusion states it, everybody knows, as dogmatically as a Pope: it would be a pedantic and insincere affectation if he did not.

These and other fancied distinctions are the result of comparing an inside view of science with an outside view of history—science as an actual process of thought with history as a dead, finished article. When both are regarded as

actual inquiries, the difference of method and of logic wholly disappears. The traditional distinction, we have suggested, has its origin in a simple historical fact, the fact that science became an object of philosophical reflexion long before history: not in any epistemological dualism. To erect such a dualism is to falsify both science and history by mutilating each of one essential element of knowledge—the element of generalisation or the element of individualisation: and so mutilated, it is not surprising if now history, now science, should appear an illegitimate form of knowledge.

II. By A. E. Taylor.

My belief is that they are different, and I am now to give a brief statement of my reasons for thinking so. I say my reasons and no one else's, because I do not see that a discussion of the kind we are now engaged in is likely to be profitable if it resolves itself into an attempt to count heads and to make out, largely by doubtful argumentation, that Plato or St. Thomas or Hegel has taken sides and Rome has therefore spoken and there is nothing left to discuss.

The view I believe to be false in principle can perhaps be most readily indicated, and the reasons for thinking it false most briefly suggested, by stating it in what will perhaps be thought an exaggerated form, though, if the view were only true instead of false, I do not see that such a statement would be anything but perfectly appropriate. Spinoza, we all know, undertook to write *Ethica more geometrico demonstrata*, though most of his readers have held that the promise was not really redeemed by the performance. How if Gibbon had promised the world, or if some enthusiast for the opinions of the late Sir John Seeley were yet to promise an *Historia Imperii more geometrico demonstrata?* Should we, or should we not, expect to find that in proportion as the work was good history, the "geometrical method" *eo praefulgebat quia aberat?* I believe we should, and I want to show very succinctly why I believe we should be right.

The root of the difficulty does not lie, as is often said, in the distinction that "science" deals with the "universal" but history with the "individual". This is, no doubt, true, but if it were all, a clever disputer could make out a plausible case for neglecting the distinction by arguing that the universal truths of science hold true of individual cases, and that the individuals whose doings form the subject of history

are only known to us as objects with this or that complex of "universal" attributes. The real difficulty is rather that science, when it is "pure," that is when you have freed it from complication with any extraneous preoccupations, when it is all through "science" and nothing but "science," never affirms and never attempts to affirm anything but a formal logical implication between a proposition which it calls a demonstrated conclusion and a group of other propositions which it calls the premisses for the conclusion; history, when it is pure history, freed, to repeat myself, from all preoccupation with the extraneous, always tries at least to affirm the truth of a categorical proposition. Thus, to take a pair of illustrative examples, it is no concern of purely scientific science whether or not the famous Pythagorean proposition is true. The scientific work is done when it has been shown that a certain small group of postulates, all explicitly asserted or tacitly assumed without proof by Euclid, imply as a logical consequence the theorem of Pythagoras, and that if any member of this group of postulates were omitted there would be no such implication. Whether these various postulates are themselves true or not is not a problem for the geometer as such. He may, so far as I can see, hold that they are true, that, as it is quaintly put, the "space in which we actually live" is "Euclidean"; he may hold that some of them are not true, that we "live in a non-Euclidean space"; he may hold that one or other of these views is true but that we cannot tell which; or finally, as it seems to me—and I could quote names, if necessary, to prove that this is not merely a view of an "outsider" in geometry—he may think that the problem itself is on the same level as the question whether the body we call Jupiter really is Jupiter, or whether the true reckoning of money is by pounds and shillings, by francs or by dollars. Our view of his common sense may be affected by his verdict on this issue, but not our view of his competence as a geometer. Or again, if you start with certain very simple postulates about the type of structure of the integer-series, you can, as Frege has shown more elaborately than anyone else, deduce the whole system of rules which make up simple Arithmetic, but it may remain in doubt all through, as Frege left it in doubt, whether there really is anything which answers to the notion of an integer as defined by your initial postulates. Only the doubt does not in the least affect what you have really asserted, *viz.*, that if your two or three initial assumptions are granted, the whole bulk of your conclusions follow with strict logical necessity. You would show yourself a bad "arithmetician" if you de-

clared a consequence to follow when it does not follow. You do not show yourself a bad arithmetician because it may be doubtful whether one of your postulates is true. All that is really demanded in regard to them is that they shall be as few and simple as possible, and that each of them shall be independent of all the others, *i.e.*, that the consequences alleged to follow shall not *all* follow if any one of the postulates is expunged from the list. Your crew must be sufficient to row your boat, and it must contain no "corkers".

For the sake of contrast, take any proposition about history you please, the simpler and more childish the better for my purpose, *e.g.*, "Richard III. murdered the sons of Edward IV. in the Tower," "William III. was an accessory to the Rye House Plot". The main point of interest here to the historian of our country is whether these allegations are themselves true or not. If the princes were still alive when Henry VII. reached London, or if "Hooknose" knew nothing about the Rye House Plot until the arrest of the real or alleged plotters, these statements are simply false history. The existence of a logical implication between the premisses and the conclusions based on them is here only interesting in a secondary way for its bearing on the truth of the conclusions themselves. In point of fact, the historian only rarely, if ever, really succeeds in putting the logical implication beyond all doubt. In our own example, the first proposition is one which most historians have accepted, the second one which they have rejected. Yet the kind of evidence produced to establish the connexion of premisses with conclusion appears to be about as good in one case as in the other; in both, as a matter of logic, alternative readings of the facts are really left open.

It is not to the point to argue against this real distinction by urging that the individual persons and events of history have universal characters and that it is these characters which make up what we really know about them. The question is what it is we are interested in establishing and what we think it our business to establish in history. We are emphatically not interested, when we write the history of Richard III., to make out the proposition that a politician with the character we believe King Richard to have had is very likely to put rivals whose pretensions may be a source of difficulty and danger out of the way if he has them in his power. We may grant this implication quite freely, and yet, if some one were to produce undeniable evidence of the existence of the two princes after the battle of Bosworth, though the evidence might not lead us to make any alteration

in our hypothetical estimate of Richard's character, and so would leave the general implication still standing, we should certainly feel that we were in the presence of a new historical fact, and we should feel called on to rewrite history accordingly. The plain fact is that what the great representatives of the scientific ideal have always been interested in is viewing things, as one of the greatest wrote, *sub specie quadam aeternitatis*. They are only interested in their temporal character so far as this can be regarded as a clue to their eternal character; they may have to allow, in some cases, for the temporal in their premisses; their aim is to exclude it, if they can, from their conclusions, and this is the real reason for the "hypothetical-deductive" method which all science does its best to follow. But, thank God, all our interest and all our knowledge is not confined to the *species quaedam aeternitatis;* we are also interested in the temporal as temporal, and we can know a great deal about it; even if you decline to call this knowledge science, as I think you ought, it is "information," and it is just because we care about information that there is a substantive study of history. Of course you can make the study merely subservient to that other interest in the non-temporal. You can treat history as merely offering a starting-point for the framing of hypothesis about tendencies in human nature. At its best, however, the result of that kind of study is not history but "Politics," the study of the legislator and statesman; at its worst, it becomes the medley of crude guesses which has dignified itself appropriately enough by the vulgar and hybrid appellation of "sociology," an unlovely *simia Politicae*. But Politics and sociology are both discriminated from true science by the multitude of their unproved postulates, the vagueness of them, and the total neglect of any care to insure that the postulates shall be sufficient and shall be independent of one another. The historian's aim is at bottom quite different from that of the student of Politics or sociology. They are concerned with the "moral" of the fable; the true historian only cares for the "moral" in a wholly secondary way. He knows that the moralising tendency is so widely diffused that men will read his narrative, as too many of them continue to read *Hamlet* or *Don Quixote*, for the sake of the "moral" to be got out of it, and he must prefer that the "moral," since moral there is to be, should be one in conformity with the actual facts and not otherwise. But his real interest is with the story, a story of the deeds of individual men or individual societies which he does not expect to recur and does not, at least in his quality of historian,

regard as "cases" or "instances" of a law of tendency. They may very well be that, but it is not because they are that that he takes so deep an interest in their story. One might, for example, be interested in the History of the Roman Empire simply as a striking case in point to show how what is at bottom a military usurpation, under a constitutional mask, comes to show itself in its true character in spite of the ablest attempts of the most intelligent of the wielders of the usurped power to "save appearances" and to hide away even from themselves the true "secret of empire"; how the ultimate break-down of this attempt, aided by the over-greatness of the burden to be borne and the tendency of new social strata to work to the surface and of new blood to find its way into the boundaries of the "civilised" state, leads in the end to the dissolution of the institution itself. But it is plain as the day that this was not the chief interest which the tale of the *Decline and Fall of the Roman Empire* had for our great historian of it. To him the great interest of the Empire was that its history and its institutions were the source of so much in the life and institutions of the society in which he lived. From the point of view of a pure sociologist, the interest of the Roman Empire and its fortunes should be quite independent of the "empirical" fact that its historian lived in the Europe of the eighteenth century and not in the moon, and that he was the heir of the Græco-Roman tradition of life. To Gibbon these "temporal" facts made nine-tenths of the interest of his subject. And so it must always be with all of us. *Sub specie aeternitatis*, and as material for the sociologist's queries, the past of China or Japan may be as important as that of France or England; for us who are Frenchmen or Englishmen it cannot possibly be so. Just so, though for God the life of any man may have as much interest as that of Dante or Chatham or Knox, it cannot be and ought not to be the same with us who are the heritors of what they did, wisely or amiss. It is no answer to repeat the old story that whether we are contemplating *sub specie aeternitatis* or *sub specie temporis* that which we contemplate is in either case the same thing, that every universal is also particular and every particular universal. Even if this were true, as I, for my part, do not believe that it is, the observation would be irrelevant. It would still be one thing to study the particularity of the universal and another to study the universality of the particular. In a different field of study, it may be true that our real concern with a great philosopher is to discover what he meant to say, and that the words in which he chose to say

it are a secondary matter, but every scholar would subscribe to the statement that it is our business to fix the text, say of Plato, before we proceed to our interpretation and that in fixing the text our immediate concern is not with what we rightly or wrongly suppose to be the "Platonic philosophy," but with the MSS. and the ancient *testimonia*. In history the point is even clearer for the reason I have just given. Just as we are interested in our own relatives and friends and enemies, not primarily as "social types" illustrative of psychological laws, but because they are *our* relatives or friends or enemies, we are legitimately interested in the same way in the special past to which we owe our own traditions, and in a lesser degree to the past to which other races of men owe their traditions, because it is the past of *ourselves* or of our fellow human sojourners on this particular world of all the worlds God has made. The past of a race living on a satellite of Sirius, if Sirius has satellites, may reasonably be of equal value as illustrating laws of tendency: it would be irrational to hold that it can have the same interest for us.

I have dwelt so long on these obvious considerations mainly because they ought to keep us from introducing false methods of study into history. The point is one which has been made admirably, though without any special reference to the particular problem we are discussing, in Baron von Hügel's wise and tender essay, *Preliminaries to Religious Belief* (*Essays and Addresses on the Philosophy of Religion*, pp. 98-118). The great concern in science is that the postulates which form the *protases* of our statements of logical implication should be as few and simple as the case permits of. (I should say, perhaps, as a caution, that by a "postulate" I mean *any* undemonstrated proposition used as an ultimate premiss in science. I make no assumption that "postulates" may properly be assumed at the dictates of our "volitional nature," *i.e.* because we should like to assume them, still less that the mere making of the "postulate" in any way guarantees its truth. I am using the word in the mathematician's sense, not in that of some "philosophers".) Hence strict science rightly and properly follows the lead of Descartes in insisting that its postulates shall convey "clear and distinct" ideas. But in the actual growth of knowledge, even about our fellow-men, still more about God, as von Hügel rightly insists, we never begin with or rest our knowledge on "clear and distinct ideas". The reality with which we are in contact, when we begin as infants to "know" our nurses and parents, when in any stage of life we have the religious

man's direct sense of touching God, is in its nature so very rich and complex that our "knowledge" of it is bound to be inadequate and dim, the sort of "knowledge," as the same writer says, that a dog has of its master, only still dimmer. Von Hügel is specially concerned with directing this argument against the agnostic in theology who argues that because our supposed knowledge of God is so dim and confused, it is worth nothing, and quite probably it is not knowledge of anything at all. But the same sort of considerations, in a lesser degree, are applicable to the study of human history. Our interest in the men and the ages of the past which has shaped the traditions under which we live is of the same kind, not as our interest in the observations which will confirm or refute a suspected mathematical law or a formula in physics or chemistry, but as an interest in our personal friends and foes.

We want, quite legitimately, to know what manner of men these were; what they really did; whether the benefit or the harm accruing to us from their deeds was foreseen and intended or not, and if not, what it was that they really purposed. This sort of interest is quite unlike that of the strict follower of science; the motive at the bottom of it is quite different from his passion for reducing the course of events to law and formula. A statesman may, to be sure, read the history of the past, mainly to learn from it how to shape his own path among the uncertainties of life, but for that very reason, his interest in history is that of the politician, not that of the historian. At bottom, I take it, we all want to know these things for the very good human reason that we want to feel gratitude where gratitude is deserved and not to bestow it where it would be wasted on the undeserving. And for that reason we properly ask of a great historian something we should never demand from a writer on science, just as we ask the same thing, under easier conditions, from a great novelist. Of the man of science we ask no more than that he should "explain" the course of things to us, make it smooth and easily to be taken in as a whole, by showing how it all follows by logical deduction from a few simple unproved principles taken in conjunction with a comparatively few close observations of actual fact as a "control". If history were what it has often wrongly been taken to be, disguised political theory or even disguised "sociology," we ought to be content to ask no more of the historian. In point of fact we do ask something more and very different.

We expect the really great historian not merely to "explain" events to us but to make us "understand" the doers of historical deeds. He must bring it home to us with conviction

what manner of men they were, who were doing, and what they believed themselves to be doing. Now this is where "science" inevitably falls short. I can illustrate my point most readily by an obvious example. A man may be a thoroughly "scientific" psychologist with all the latest theories and laboratory facts at his fingers' ends, and yet he might be quite incapable of telling a story of human action, even one in which all the events were certified "facts," in such a way as to make us accept the personages of the story as "real"; they might impress us as mere products of the laboratory with labels attached to them, because, as we should probably say, we simply cannot "understand" their proceedings. On the other hand, men who have probably never opened a book about analytic or genetic psychology in their lives can tell a tale of the doings and feelings of quite fictitious characters in a way which makes us feel that we "understand" their personages all through; we can enter into, or as Adam Smith would have said, "go along with" all they say or do. This is why we call the fictitious characters in such men's books "real," and often speak, with some ambiguity, of their creators as profound "psychologists". So they are in a sense, but it is a peculiar sense; Henry James and William James may both be called "psychologists," but not quite in the same sense of the word.

Now I maintain that it is this power of "going along" with the actor in an historical scene and making his readers "go along" with him, which may be wholly wanting in the subtlest analyst of situations or deviser of political theories, that is the supreme gift of the really great historian. And it is not a gift which can be got by any devotion to "scientific method". It has nothing to do with "clear and distinct ideas"; which of us has what the logician would pass as "clear and distinct ideas" of his most intimate friend? The ordinary good Psychology manual will give you much clearer and distincter ideas of the assumed typical man whose mind it proposes to analyse and watch as it grows. But you would be badly at sea if you attempted to read the riddle of a real man's character by dependence on even so admirable a textbook as the *Manual* of my colleague Prof. Stout, as I should imagine he would be the first man to admit.

I do not mean, of course, that a great historian is a brilliant novelist under another name. I should not ask anyone to regard the very brilliant novel called "Froude's History of England" or the hardly less brilliant novel of Macaulay as typical historical masterpieces. The historian works under a control from which the novelist is free. The novelist is at

liberty to "see" his characters first and then shape the course of their doings to correspond to his vision. The historian has to start by "documenting" himself about the complicated web of events and then to divine the actors. It is the same process, on a larger scale and applied to the past, which each of us performs in his way, when he judges the persons among whom his life is cast by what he knows of their words and acts. What I do mean is that the performance of this task is incumbent on a historian and that it is success in it—success in making us "understand"—which stamps the really great historian. A man for whom the acts of men are no more than events, like the fall of a cathedral spire, or the occurrence of an unexpected storm at the crisis of a battle, might, for all I can see, quite well supply the student of Political Science or its counterfeit "Sociology" with materials for constructing more or less sound theories about "social tendencies," but no man will be an historian unless he understands that, even if there really are any mere "events," the acts of fully awake and accountable human beings are acts and not mere events and that our quite unscientific but quite legitimate interest in a past which is our own past will not be satisfied until we have been made able to "understand" the actor behind the act. For this reason, though I see no reason why the historian should always add the function of the judge to his own and insist on formally pronouncing sentence on the persons with whom he deals, I must confess that Lord Acton seems to me to have understood what is properly to be expected of an historian better than Seeley and his followers, who seem to think that when the work of providing Political Science with materials for its formulæ has once been done, nothing much is left for the historian but to compose "Tales of a Grandfather".

III. By F. C. S. Schiller.

The theory of the three-member Symposium is supposed to be that the first string develops his Thesis, the second harps upon the Antithesis, while upon the third performer devolves the onerous duty of finding (if he can) the Higher Synthesis which resolves their discords. In practice, however, this is so arduous an undertaking that it is easier to make a triangular duel of it, and not infrequently it happens that the aims of the parties are so little co-ordinated that they attack, not one problem, but three or more. Usually this

comes about unintentionally, owing to the infirmity of philosophic purposes; but on this occasion I understand that Prof. Taylor wishes us to legitimate the practice, and consciously to aim at independent treatment, that is, to disregard the history of the debate. And though I am a little apprehensive that this procedure, if it became common, would foster in 'symposiasts' a vice to which philosophers are all too prone, that of solitary drinking—I mean, of course, *thinking*—in the present case I have no difficulty in complying with Prof. Taylor's request. For, sooth to say, I find that my predecessors have been singularly reasonable. They have abstained from firing off philosophic paradoxes at our common target, and from bombarding their audience with cryptic conundrums. Neither of them has asserted that Science alone is knowledge, and History is not, or that History is knowledge and Science is not. Neither has asserted that Science is concerned only with eternal truth, or that History has no relation or relevance to scientific truth. Both have refrained from the verbal juggling with the terms 'particular' and 'universal' which has so long seemed to be the sole contribution philosophy could make to any problem.[1] Both the unity of knowledge and the diversity of its kinds have been upheld in quite a moderate way.

Consequently it would not have been easy to quarrel with either of them, though incidentally both of them reveal that they do not quite understand pragmatism. With Mr. Collingwood's attitude indeed I find myself in such cordial agreement that I can accept all his contentions, though I think some of them may prove misleading unless they are safeguarded and supplemented by extensions and corollaries which he does not mention. Prof. Taylor's interesting paper I could not swallow so whole-heartedly: parts of it should, I think, definitely be rejected. But my reasons for so doing are so very simple that they would not lend themselves to any very protracted debate. Accordingly it seems quite possible that in this instance dialectics will be less instructive than a more direct approach to the problem;

[1] I am particularly appreciative of their abstention from this practice, in which neither term was ever defined or distinguished from the other. But if we cannot say wherein either particularity or universality consists, what is the use of predicating either of anything? And further, what meaning can it have to say that everything is *both* 'particular' and 'universal'? If that is so, and if neither 'particular' nor 'universal' can be, or be defined, *per se*, the distinction between them becomes an arbitrary distinction without a difference, and explanation in these terms is meaningless.

at any rate I will endeavour to develop our question independently and shall only refer incidentally to the points where my predecessors' treatment seems to me to require comment.

It is permissible perhaps to begin with a truism. Our question obviously implies that, whether or not Science and History are identical, they are not wholly different, but relevant to each other and to the nature of knowledge. For if they were not different, they would not be distinguished; while if they were utterly different, they could not be compared, and so no question could arise as to the precise difference between our cognitive procedure in Science and in History. It is also antecedently probable that such differences as may be found will not be very serious, for if they were, they would gravely detract from the unity of knowledge and the utility of recognising it. Further, if the differences between Science and History are not serious, it will be a question whether they are to be dignified with the title of 'differences in kind'.

I will follow up my first truism with a second, which ought to be deemed its equal. Of all the multitudinous definitions an object of inquiry may receive, the most significant is one which expresses the purpose for the sake of which it has become an object of inquiry. In other words, in order really to understand the nature and function of Science and of History, we must discover why they become objects of human interest and to what ends they minister, and then define them accordingly. If they serve a number of purposes and have several ends, it will be necessary to evaluate these ends, and to decide which of them is the highest and worthiest, and really justifies the interest taken in the object. For example, *food* is probably as universal an object of interest as can be found among men; it appeals to high and low, young and old, savage and civilised, and much is said and written about it. It has interest for biology, economics, ethics, politics, gastronomy, physiology, medicine; nay even for theology, seeing that the earliest religions appear to have been forms of food magic. It is evident, however, that the ends for the sake of which men are interested in food are not all of equal value.

The cases of Science and History seem similar. Both may be pursued for various, and for the same, ends. Thus some may study Science and some History, because it amuses them. Others, for the sake of a livelihood. The former end will appeal more to the amateur, the latter to the professional. Or again, both Science and History may be useful to the

politician, and be exploited accordingly. But none of these ends would yield a very adequate definition of these interests, and they would certainly not enable us to *distinguish* between the function of Science and of History.

We must therefore try again. Perhaps a deeper and more specific end is to be sought in the functions which human life is enabled to fulfil by knowing Science and History. What, then, is the *vital value* of each? Vital value both must clearly have, in some way or other; otherwise they could not maintain themselves as spiritual industries.

Now in the case of Science the answer to this question has become pretty obvious. The *essential* characteristics of scientific knowledge, which distinguish it from pseudo-science, divination, guesswork, metaphysics, verbiage, and nonsense, are *prediction and control.* It is that whereby we foresee the future and calculate the distant, and guide our action accordingly. It is the knowledge which is power, and which ministers to our desire for power. It is the knowledge which extends our power beyond the present into the future, which forecasts the consequences of our activities and enables us to foresee what will happen next. It liberates us, therefore, from the restriction of actual experience to the passing moment.

This achievement, however, is not enough. It is not enough to know the real as it is, in order really to know it, in order to control it. We must know also what it will be, and what it has been. To understand the actual and to treat it rightly, we must extend our knowledge backwards into the past, and regard it as a product of the ages.

We ask, therefore—how has the actual come to be as it is? This is the essential question which History tries to answer. Its province is the past; its purpose to reveal it, to redeem it from oblivion, to relate it to the present, in order that we may have the power over things that comes from knowledge of their past. It follows from this definition that prophecy is not the primary business of History; it leaves this to Science, which is not, however, restricted to the future; Science can calculate the past as well as the future, though only with the aid of History. The ultimate aim of both, however, is to minister to our need of controlling a reality that kills us if we don't.

If these definitions be accepted, it is clear what the difference is between History and Science. It is not, however, inconsistent with its recognition to add a warning that it does not imply any antagonism between Science and History, but demands their close co-operation. Clearly the historian

may, and must, use all the technique of calculation which Science proffers, to reconstruct the past. In return, the scientist must recognise that, in all that concerns the past, he needs the help of History.

In the last resort this means that he needs it everywhere. A birth-story attaches to every scientific fact, and an umbilical cord once connected it with the womb of time. All the *data* out of which scientific 'facts' are fabricated are primarily historical. If it is not historically true that a certain Mr. Dawson once found certain bones at a certain distance from each other in a certain deposit, the Piltdown skull was that of a man and the teeth were those of an ape, and *Eoanthropus Dawsoni* cannot be put together, and becomes a myth. If it is not true that trustworthy observers have seen the fall of meteorites, Laplace was right to argue that 'there are no stones in heaven, *ergo* none can fall from heaven'. If seers of ghosts and witnesses of miracles are always liars, the beliefs based on ghosts and miracles fall to the ground. In short, the truth is that all scientific laws presuppose scientific facts, and all scientific facts presuppose historical facts; thus every known 'law of nature' would crumble or evaporate if a limited (and usually quite a small) number of historical observations should be rejected as untrustworthy. Every scientific truth, therefore, has a past and a history, on which it remains dependent.

But every scientific truth also hopes to have a future. It means to remain true. It has the ambition and the duty to predict: it claims to regulate a course of events which it admits to be unique. The idea that a scientific law is a timeless formula, having eternal truth or validity and exempt from all obligation to embody or exemplify itself in the flux of events is a philosophic blunder, a blunder which scientists repudiate, because they know that the time-relation is left a blank only in order that their 'law' may be applied to and at *any* time. It retains a certain popularity among philosophers who have learnt nothing since the days of Plato; but I am glad to see that my colleagues are not of this kind. Mr. Collingwood is quite explicit in repudiating the notion that the whole business of Science is to generalise and that it has no concern with the particular: its function is to interpret particulars by means of generalisations. And he makes this his chief ground for denying any essential difference between Science and History. Prof. Taylor, too, admits that it can be argued that "the universal truths of science hold true of individual cases," though he would not, perhaps, admit that they are *meaningless* unless they do. As, however, unlike

Mr. Collingwood, he wishes to stress the difference between Science and History, he adopts an ideal of 'pure' science, of which that can be alleged which is manifestly false of actual science. 'Pure' science has no truck with 'fact,' and no connexion with 'applied'. It takes no dip in the great stream of events. Being purely 'hypothetical,' it has no relation with 'pure' history, which tries to be 'categorical'. But it has not occurred to him that if so, 'pure' science will neither work nor wash; it is pure *fiction* and a creature of abstraction. It is futile fiction and false abstraction. For the 'pure' principles must be used, and the pure science be applied. Moreover, Prof. Taylor's point can not be proved thus; for to show that 'pure' science and 'pure' history have no relation, either with each other or with our purposes, is no proof that actual Science and History are not interdependent and intended to co-operate with each other and with us. The actual collaboration of actual science and actual history Prof. Taylor does not appear to deny: it is only as 'pure' abstractions that they are irreconcilable. And this is merely a way of saying that these abstractions are unreal and useless; they do not serve to elucidate the actual functioning of knowledge, in which *all* our activities play into each other's hands.

Nevertheless there are differences between Science and History, and they should not be overlooked. We should note in the first place that, though both aim at an unambiguous account of their subject-matter, neither of them quite succeeds. Science, though it assumes, as a postulate of method, that the future is fixed and unambiguously calculable, does not succeed in predicting it completely. It ascribes this failure, quite consistently, to the infirmity of human knowledge, and not to any inherent recalcitrance of the real, or any impossibility of predicting the course of an indeterminate agent. But despite this explanation, the fact remains that our science cannot fully determine the future.

At first sight we are better off in regard to the past. We are accustomed to say that though the future may be, or seem, contingent, at any rate the past is fixed unalterably. It is dead and done with, and what is done cannot be undone, even by the gods. History is a record that stands, and cannot be shaken. All these beliefs are dangerous delusions. They spring from illusions that rest upon a false abstraction. We can abstractly conceive the past as existing *per se* and apart from our means of knowing it; if we do this, we can represent it as determinate and unalterable.

But such is not the character of the past *as known*.

The past in which we believe, and which we believe our histories to record, is *not* the object of an assured, determinate and definitive knowledge. It is always incomplete, dubious, undetermined. Its history is only a hypothetical reconstruction, often highly imaginative, out of utterly inadequate material. The more the logical character of historical evidence is examined, the more unsatisfactory it seems. It is full of bias, folly, error, discrepancy and contradiction. There is always too little evidence for it, and usually too much. For so much of the evidence is so bad and unenlightening. The historian therefore has to appraise and select at every step, and if he compiles a plausible tale—perhaps only a *fable convenue* or a masterpiece of propaganda—he is acclaimed as great. Another may achieve as much, and then we can accept whichever tale we please. For there is no verification of either, as in Science, and no crucial test. The only verification History can claim lies in alleging nothing grossly improbable, and nothing from which our actual present could not have followed. It must not be said that Hannibal, not Brennus, captured Rome and burnt it. For if he had, Mediterranean man would presumably now be speaking a Semitic, not a Latin, tongue.

But this verification by consonance with the actual is wholly insufficient. A thousand histories, all different, might equally conduct to the actual facts. When therefore we look back upon the past, a thousand threads of historical sequence radiate from the present into the past. There are a thousand roads which we might follow. Which of them shall we choose as the 'true' history, to lead us to the past as it 'really was' and changes not? We do not know. We cannot know. Actually, we choose the history which seems to us most promising and congenial; we choose with the character, the intelligence, the knowledge, the prejudices, the history, we have. Is it astonishing that we choose differently, that the fashions change in history as in medicine, and that all the really important questions, *i.e.*, those which are felt vitally to affect the present, remain matters of partisan debate? Actually, therefore, the past is for us as indeterminate as the future: the determination of both remains an overbelief which does not debar us, in either case, from reckoning with alternatives.

So far the scientist and the historian appear to be, very definitely, in the same boat, even though they do not row on the same side of it. The scientist, however, has one definite advantage. The verification of a historical hypothesis, which deduces the actual from what is judged to be the best

interpretation of the evidence, was, we saw, very imperfect, and if any portion of the structure is insecure, there is no help for it. Nothing can be done, because History cannot be re-enacted, and observed afresh. It never quite repeats itself, because if it tried to, the very fact that it had occurred before would, if it were remembered, alter the result. Hence the historian cannot *experiment*. The scientist can. If he is not satisfied with the evidence for his hypothesis, he can devise fresh tests, or repeat the old ones. True, such repetition is never absolute, and a theoretic quibbler may always object that therefore the case may not turn out to be the 'same,' nor indeed a case at all, of the theory under examination. But experience shows that over extensive fields of scientific research the conditions practically *can* be repeated and the differences between the various experiments rendered minimal and irrelevant. Hence verification is a much more potent weapon in Science than in History, though even in Science no amount of verification of a 'law of nature' by subsequent fact suffices to prove it absolutely true.[1]

The truth, therefore, both of Science and of History is pragmatic; it is established in the same way as the rest of our knowledge. In ultimate analysis there is but one truth, and one way of ascertaining it. There are differences in the working of our method in Science and in History; but these are due to the different recalcitrance of the material to our various purposes. In the end, however, Science and History stand and fall together; and I at least can conceive no worthier aim for a philosopher than to stand by *both*.

[1] In regard to mathematical 'truth' it may be observed, (1) that to admit that it is deducible from postulates which are 'arbitrary' (in the sense of admitting alternatives) is an admission that it is *not* absolute, while (2) the necessity of accounting for the *actual choice* of postulates imposes *empirical* conditions on its truth. For the postulate-systems preferred are either chosen on subjective grounds, or are those which have shown themselves convenient and useful in the interpretation of our experience. Their empirical validation, however, disposes of the Platonic charge that the principles of the sciences are arbitrary and insecure. They would be arbitrary only if they were chosen without rhyme or reason, they would be insecure, only if they had *not* received overwhelming confirmation from the working of the sciences.

IV.—SYMBOLISM AS A METAPHYSICAL PRINCIPLE.[1]

By William Temple, Bishop of Manchester.

It is abundantly clear that one of the chief characteristics of contemporary philosophy is the place which it gives to the concept of Value. There is nothing unprecedented in this. Indeed it is not possible to give a higher place to Value than Plato did when he made the Good the supreme principle in reality or required of Anaxagoras that, in order to illustrate the supremacy of Reason, he should prove the earth to be either round or flat by showing which it is better that it should be. Aristotle, whom no one has yet censured for sentimentalism, similarly clinches his argument for the Unity of God or the governing principle with the maxim and the quotation: *τὰ δὲ ὄντα οὐ βούλεται πολιτεύεσθαι κακῶς. "οὐκ ἀγαθὸν πολυκοιρανίη· εἷς κοίρανος ἔστω."* But though not unprecedented, the prominence of Value in the thought of our time is characteristic. To the religious thinker, it is welcome. And yet there is a remarkable indefiniteness in the current use of the term, and the relation of Value to Reality or Substance is by most writers either not discussed or is very sketchily outlined. The aim of this paper is to offer a very small contribution to the discussion of these questions.

I.

The structure of Reality, as it presents itself to us, seems to be as follows: It consists of many grades, of which each presupposes those lower than itself, and of which each finds its own completion or perfect development only in so far as it is possessed or indwelt by that which is above it. This seems to involve an infinite regress, and suggests an infinite progress. Whether there is in fact a lowest and a highest term in this scale of finite existences I do not know, and I do not greatly care. In a book of mine called *Mens Creatrix* I have tried to show that the infinite series is not necessarily meaningless in logic or futile in ethics. At present I am not

[1] Contributed to the Joint Session of the Mind Association and the Aristotelian Society at Manchester, July 14th-16th, 1922.

concerned with the problem of lowest and highest terms, but with the facts before us, which may fall midway between such terms. I am rather tabulating impressions than constructing a system, though the tabulation is of interest because it suggests the principle of a system. To make my present meaning clear it will be enough to take the broad divisions: Matter, Life, Mind, Spirit. These grades may be for our present purpose indifferently regarded as various entities or as different modes of action and re-action. Matter is itself a term covering many grades; so is Life. But each has sufficient identity in itself and sufficient distinctness from the others for the requirements of the argument.

The term Matter is here taken to cover the substances or the modes of action and re-action which are studied in the sciences of Physics and Chemistry. It is at once quite clear that those sciences give no account of the self-movement which is one characteristic of Life, or of the comprehension of spaces and times which is one characteristic of Mind. The lower cannot explain the higher. But that is not all. The living organism has in its material constitution a unity of differences, a subtlety of co-ordination, a spontaneity of adaptation, that no knowledge of Physics and Chemistry would enable the observer to anticipate. The material only reveals its full potentialities when Life possesses and indwells it. The later development reveals what had all along been potential in the earlier; but no knowledge of the earlier apart from that development would have made possible a prediction of the development. Matter only reveals what it really is when Life supervenes upon it.

Similarly Life only reveals what it really is when Mind supervenes upon it. No study of zoology and biology will enable the student to predict the occurrence among living things of Shakespeare or Bach or Leonardo or Newton. The use of faculties, which at first are used for mere survival, in the interest of ends that have nothing at all to do with survival, must occur in fact before it can be anticipated in theory. So too Mind as intellect only shows what it can be and do when it is guided by Mind as Spirit. The existence of Art and Science, though they make upon Life an absolute claim, will not account for the self-sacrifice of the hero or the martyr. And, if Religion is to be trusted, even Spirit (as known in our experience) only reveals what it can be and do when it is possessed by that Highest Being, whom we call Spirit because Spirit is the highest grade of Reality known to us.

We begin then with the conception of Reality as existing

in many grades, each of which finds its own completion or perfect development only in so far as it is possessed or indwelt by that which is above it. But we then notice that each depends for its actuality upon those which are below it. Matter itself as experienced by us can be reduced to what is simpler than itself, whether to α, β and γ particles or still more ultimately to Space-Time. Life is unknown apart from living organisms, which are Matter informed by Life. Mind is unknown except in reasoning living organisms. Spirit is unknown except in conscientious, reasoning, living organisms. Whether the higher grades can exist apart, there seems to be no means of deciding; in our experience they never do.

Thus we see each grade dependent for its existence on the grades below, and dependent for its own full actualisation on the grade or grades above. Such seems, apart from any theory of its origin or *raison d'être*, to be in fact the structure of Reality.

II.

At this point I must ask leave to assume that when we ask for an explanation of the Universe as a whole we are bound to formulate the answer in terms of Will. To summarise very briefly the argument by which I should seek to justify this assumption, I would submit that there is in our experience one, and only one, self-explanatory principle—namely Purpose or Will: no doubt, if anyone can believe in a purpose with no will behind it, we should have to say "Purpose" only, leaving "Will" as a precarious inference; but as it appears that Purpose and Will are terms that mutually imply each other, we may speak of either indifferently. There is a "problem of evil," but there is not in the same sense any problem of good. When we find as the cause of any phenomenon an intelligent will which chose to cause that phenomenon to occur, we raise no further questions, unless we fail to see how that will came to seek this occurrence as good. We may be puzzled by the way a man exercises choice; but our problem here is not as a rule a problem of efficient causation. When we sympathise, we are not puzzled. If I say of anyone "I cannot understand acting like that," I do not mean that I cannot give a psychological analysis of the motives of the action; I mean that I cannot imagine myself doing it. When in the causal regress we arrive at a will, the regress is at an end, and to understand means,not to give a causal explanation, but to sympathise.

We have reached an ultimate term. And when we do sympathise, our mind raises no more questions. The only explanation of the Universe that would really explain it, in the sense of providing to the question why it exists an answer that raises no further question, would be the demonstration that it is the creation of a Will which in the creative act seeks an intelligible good. But that is Theism. Theism of some kind is the only theory of the universe which could really explain it. Theism may be untenable; if it is, the universe is inexplicable. Merely to show how it fits together as a rational system does not explain it, for we are left still asking—why does it exist at all? When once that question is asked the answer must be found in Theism or nowhere.

I need hardly say that I do not advance this outline argument either as the only defence of Theism or as a sufficient intellectual basis for it. The whole body of argument that is articulated by Prof. Pringle-Pattison and Prof. Sorley in their Gifford Lectures, or by Mr. Matthews in his recently published Boyle Lectures, is here presupposed. But the point which I have just mentioned, and which deserves more attention in my judgment than it generally receives, is the one most germane to the group of considerations with which we are now specially concerned. Other arguments seem to establish the principle that the universe must be interpreted by spiritual rather than by mechanical or other materialistic categories. Other arguments tend to establish the ethical character of the spiritual power or powers that govern the world. Philosophically everything is ready for Theism. But actual belief in a living God rests primarily, as I think, on religious experience, and finds its intellectual support in the reflexion that this belief is capable in principle of supplying an explanation of the very existence of the Universe, which no other hypothesis available to us affords any hope of doing. That is no proof. It cannot be laid down as an axiom that there must be some explanation of the existence of the Universe. If the existing scheme of things be internally coherent, it cannot be said that the mind imperiously demands more than this for its satisfaction. It is true that we have to choose between postulating a rational universe and accepting complete scepticism. It is not true that we have to choose between theism and scepticism. I should be very sorry to have to believe that Reality is what Mr. Bradley describes or even what Prof. Pringle-Pattison describes. But I could not reject their accounts of it only on the ground that they do not explain its existence as a whole. For while it is an additional advantage in any theory

if it can do this, it is not fatal to any theory that it should fail to do this, or even refuse to attempt it. It may be that there is no explanation of Reality itself, and that it is not self-explanatory except in the sense that all its parts support each other in constituting the whole. Or, again, it may be that there is an explanation of Reality, but that it is something wholly inaccessible to the mind of man. There seems no reason to suppose that mind, in its human manifestation, either includes, or itself is, the last term in cosmic evolution, and if there is more to follow, then though human mind would comprehend the lower forms it would not know at all what constituted the higher forms, and it would be in these, not in human mind, that the explanation of Reality might be found.

None the less, if there is an available hypothesis which is capable in its own nature of supplying the explanation of Reality, it is thoroughly scientific to experiment with it and see if it can make good its claim. Now Purpose, as the expression of a Will, is such a principle. But to seek the explanation of the Universe in a Purpose grounded in a Will is Theism; it is the acceptance, provisionally at least, of the doctrine of God as Creator. From religion there comes abundant support for this doctrine. To some religions, and notably to the Jewish and Christian religions, it is essential and fundamental.

III.

Now if we assume the structure of Reality to be such as I have outlined, and if we accept (at least for purposes of enquiry) the explanation of it which Theism offers, certain consequences follow, which it is the main purpose of this paper to trace out.

Will acts always for the sake of value, or good, to be created or enjoyed as a result of the action. It is precisely as so acting that it is self-explanatory and intrinsically intelligible. This would lead us to expect that whatever Will creates is either itself good or is a means to good. Moreover if what is created is good not (or not only) as a means but in itself, this means that its very being or substance is good. I do not, at present, go so far as to say that good is the being or substance of all that exists, but we are entitled and even bound by the hypothesis adopted to say that whatever exists must either be a means to something which is substantially good or else be itself substantially good. We seem therefore to be led up to a new enquiry into the relations of value and reality.

Now if I may take Prof. Pringle-Pattison as an illustrious example of contemporary philosophy, and discuss, not the

details of his argument, nor its claims taken as a whole, but the general impression created by it on my own mind, and also (as I find) on many other minds, I would venture to suggest that many of the anxieties with regard to it which that general impression arouses would vanish if he saw his way to a more thorough-going conception of God in terms of Will. For the general impression left on my mind by his great book on the *Idea of God*, and greatly strengthened by his essay in the volume entitled *The Spirit*, is that he accepts the Universe as somehow existing, and then finds that it reveals values, which are regarded all the while as being adjectival to it. That they appear at all is a determinant consideration for the philosopher, and yet they appear rather as appendices of an otherwise existing universe than as themselves its constitutive elements; and when we reach the Being in whom all values are realised, He hovers uncertainly between two positions, being at one time the Ground of all existence and at another a characteristic of a universe which would apparently continue to exist (though shorn of its values) if He were to cease. And it is the latter position to which He seems to be ultimately relegated. I have no doubt that this summary is unjust to Prof. Pringle-Pattison. Almost any summary of a theory elaborated with so delicate a balance and an argument so closely knit would be unjust. But at the end of *The Idea of God* I was left with a sense that this book makes God adjectival to the Universe, and the essay in *The Spirit* removed all doubt on the question. And yet I was sure that in the main the Professor was dealing with the matter on right lines and had rendered a great service to philosophy, and especially the philosophy of religion, by following the method which he had chosen.

The question with which I am now concerned is this: should we conceive of things as existing independently and possessing value as an attribute, or should we think of value as itself the true reality which realises its various forms through embodying itself in things—or through the creation of things for this purpose by the Divine Will?

Now I believe that our difficulty arises from the fact that Philosophy being an intellectual activity, always tends to depend more upon that search for an ultimate value which is conducted in science than upon the two kindred efforts of ethics and of art. In science the intellect is not only supreme but sole; it is natural for the intellect to take the methods and operations of science not only as its method but also as determining the subject-matter of its enquiry. That I take to be the essential feature of the heresy of intellectualism.

Philosophy must be intellectual or it ceases to be itself. But the intellect always gets its subject-matter from outside itself; it is ready enough to accept it from the physical world, and from its own procedure and results in dealing with the physical world. It is less ready to accept as the material of its operations the procedure and results of human activities which are either not purely or not at all intellectual. Yet for a satisfactory metaphysic it must include these, and indeed (as I think) must give them a determining influence. The goal of Science is on the objective side Reality, on the subjective side Knowledge; the goal of Art is on the objective side Beauty, on the subjective side Creation and Appreciation; the goal of Ethics is on the objective side Society, on the subjective side enlightened Conscience and dutiful Action. It is apparent that whereas Science ends in Knowledge, which leaves the objective world as it finds it, Art and Ethics —and Religion—aim both at a comprehension of the object and at action which modifies the object. Now if the intellect is led by its own process to the affirmation, or at least to the supposition, that the explanation of the Universe is to be found in the activity of a Creative Will, it must go on to accept those human activities which include some creative energy as surer guides to the constitution of Reality than its own special activity of science

Starting with the general outlook appropriate to science, philosophers have generally made Reality their substantive notion, while Value has become adjectival. It is quite true that Plato spoke of the Idea of Good as *ἐπέκεινα τῆς οὐσίας* —which the context proves to mean "above and beyond *objective* being" (*Republic*, VI., 509 *b*); but he does not follow this up by including ethics and politics in his propædeutic studies; he remains under the predominant influence of geometry. So S. Thomas Aquinas is quite thorough in the deliberate and reiterated identification of Good with Being—*Bonum et ens sunt idem secundum rem: sed differunt secundum rationem tantum* (*Sum. Theol.*, Pt. I., Q. V., A. I.)—yet he goes on to treat Being as prior because it is the first object of the intellect, and thereafter the whole concept of Value almost disappears. Consequently his definition of Substance as that which exists of itself—*substantiae nomen . . . significat essentiam cui competit sic esse, idest per se esse* (*Sum. Theol.*, Pt. I., Q. III., A. V.)—never leads him even to consider whether this is not the same as to say that Substance and Good (or Value) are synonymous terms: hence the chief difficulties of his sacramental theories.

But the identity of substance (so defined) with Value

follows inevitably from a thorough-going acceptance of the Theistic hypothesis. The Universe is to be conceived as deriving its origin and unity from a Creative Will. But the correlative of Will is Good or Value; therefore the most fundamental element in things is their Value. This is not a property which they have incidentally; it is the constitutive principle, the true self, of every existent. Aquinas says that a thing is perfect in so far as it exists: *Intantum est autem perfectum unumquodque inquantum est in actu* (*Sum. Theol.*, Q. V., A. I.)—and that everything is good so far as it exists: *Omne ens, inquantum est ens, est bonum* (*Sum. Theol*, Q. V., A. III.). The inversion of this is the fertile truth: everything exists so far as it is good. Value and value alone is substance or has substantial reality.

IV.

It is certainly true that Value is only actual in the various things that are valuable: and it is only fully actual (though this is of no consequence for our present purpose) so far as it is appreciated by some conscious being. And it is tempting to separate the Good from the good thing, and to demand either some account of it in such separation or else a method of apprehending it in separation. But to do this is to repeat the mistake made by the Hedonists in Ethics. When I am hungry, I want food and not (except incidentally) the pleasure of eating. Desire is not of some one thing, such as pleasure. And yet it is true that when I am hungry what I want is the value or the good of food; but this is not separable from the food, and is not even properly distinguishable from it, though it is distinguishable from other aspects of the particular food in question which are irrelevant to my hunger.

So Will aims at Good in all its forms; and as God makes the world, He beholds it as very good. There is the problem of Evil of course, and it may be that it will wreck this whole fashion of philosophy; but we cannot embark upon the discussion of it here—I can only refer to an attempt to handle it in my book *Mens Creatrix*. Our concern just now is with the method which philosophy must pursue if it adopts this principle that only Value has substantial being.

It is clear at once that Ethics and Politics, and Æsthetics, will be exalted alongside of Mathematics, as the typical activities of Mind, and that on the whole they will be the more normative for Metaphysic. The Universe will be approached less as a problem (or theorem) in Geometry, more

as a Drama or Symphony, and as a Society in process of formation.

Now if the structure of Reality is such as we described, and if the problem of Metaphysics is to be approached along the lines now indicated, we begin to see a great unification take place. The lower grades, we said, only attain to the fulness of their own being so far as they are indwelt and dominated by those above them. They exist then, ultimately, to embody or symbolise what is more than themselves. The universe is sacramental. Everything except the Creative Will exists to be the expression of that Will, the actualisation of its values, and the communication of those Values to spirits created for the special value actualised through fellowship in creation and appreciation of values. Men can do some of this work themselves. Speech is a manipulation of sounds for just such communication and fellowship. By this doctrine the reality of the objects in the world is not divorced from our sense of their significance. A friend gave me during the war an illustration to show how familiar a fact is the transvaluation, which on this theory is the only true transubstantiation: Suppose a man comes to see me, finds some strips of coloured calico on the floor, and amuses himself by dancing on them to show his contempt for what he takes to be my interests; I may think him a tiresome fellow, but that will be all: now suppose those bits of calico have been sewn together to make my national flag, and he dances contemptuously on it; I shall kick him out of the house.

That is comparatively a trifling instance. In any case the symbolism of a flag is purely conventional. Yet even here it seems absurd to say that the reality of the flag is the same as the reality of the strips of calico. The accidents (as the schoolmen would say) are the same; the substance is changed.

Beginning with such a conventional symbol we may go on to fuller symbolism such as that of great Art. Here the principle emerges that to be a true or (as I have named it elsewhere) an essential symbol, a thing must be itself an individual instance of what it symbolises. So Othello can symbolise jealousy because he is a very individual jealous man. In great art, at least, the symbol is unique, and there is no other way of saying what the artist has said. In Emerson's great phrase "The word is one with that it tells of". If after reading *King Lear* or hearing the Fifth Symphony a man asks what either means, we can only tell him that each means itself; but that is the extreme opposite of saying that either is meaningless.

In that highest sphere of creative art which we call human conduct, the good or value sought is that of Personality (or Character) in Fellowship, with all the varieties that this implies. Actions have their value as symbolising and as producing this.

It is clear that as we advance from the purely conventional symbolism, represented by the flag, to the essential symbol of great art or of ethical conduct, the subjective element is reduced in importance, at least so far as it is variable. The Union Jack has value only for those who are familiar with a particular convention; and to those who do know this it may have very different values—for Lord Carson and Mr. de Valera, for example. Yet even here the value is constitutive in so far as the flag is only made for the sake of the value. But in the symbolism of Art and Conduct there is no such variability. Men may still react in varying degrees of intensity to the different embodiments of value; some are more stirred by colour; some more by line; some are more stirred by heroic energy, some more by patient humility. But at this level there is no doubt what is the value expressed in the work of art or the moral action.

If we start with this principle of symbolism as our basis, we shall not, I think, be led to any system very different in its structure from such as is set out, for example, by Prof. Pringle-Pattison. The difference will be mainly one of emphasis and of detailed expression; but difference of this kind will be all-pervasive. In ways innumerable the statement will be (as I think) more luminous in detail, more sympathetic. There will be more understanding of the different phases of Reality from the inside. For it is the characteristic of æsthetic and moral appreciation that in them we become absorbed in the object itself, as a single whole, and understand it by letting it take possession of us, whereas in science we understand partly by setting the object in an ever-widening context and learning what forces mould it from without, and partly by breaking it up analytically into its own constitutent elements. Of course our method will not dispense with the processes and results of science; but it will depend quite equally, or rather more, on those of art and morality. We shall not dispense with the psychologist or sociologist; but we shall expect to learn still more of philosophic value from the dramatist and the statesman. We shall still seek rational coherence, but shall interpret it more as realised in the *Civitas Dei* than as represented by the solution of logical contradiction.

Above all we shall avoid two difficulties that are inherent

in the other method. We shall not try to treat the merely physical as self-subsistent, leaving values to attach themselves to it in a rather vague manner, while still declaring that the explanation of the lower is in the higher; but making this declaration, we shall insist that the higher are the more nearly self-subsisting, while only the Highest is altogether so. And we shall not leave God to hover uncertainly between His function as the universal ground of existence and His adjectival attachment to the universe as the sum or realisation of its values, but we shall confidently affirm Him as the sole self-subsistent Being, existing in absolute independence of all else, for whose pleasure and by whose creative activity all things are and were created.

V.—DISCUSSIONS.

PHYSICS AND PERCEPTION.

My purpose in what follows is to deal with certain questions raised by Mr. C. A. Strong in his article on my theory of the external world (Mind, July, 1922). Mr. Strong finds difficulties in certain points of my theory of perception, which are really points in my theory of physics. The main purpose of this whole outlook is, in my view, to fit our perceptions into a physical context, and to show how they might, with sufficient knowledge, become part of physics. I think the questions at issue between Mr. Strong and me all concern matter rather than anything psychological; I shall therefore begin by treating the topics to be discussed purely from the point of view of physics.

Mr. Strong is surprised (p. 309) that I should suppose particulars which are members of different pieces of matter to exist all at the same place, in case the place is one reached by light from all these different pieces of matter. He is also surprised (p. 310) that objects are "apparently everywhere except in the place where we see and feel them," and that "a multitude of events, all happening after 12 o'clock, should be the constituents of an event happening at 12 o'clock". He points out, as though it were a consequence I had not observed, that "the object, as physical science conceives it, is not correctly defined as *the system* of all the perspectives . . . but is rather their mathematical limit" (p. 311).

It is true that I maintain these propositions (to which I shall return presently), and it is true that they are somewhat curious. But the curiousness is that of modern physics, for which I am not responsible. (I wish I were.) A piece of matter, according to modern physics, has two aspects, one gravitational, the other electromagnetic. (If Weyl is right, as seems highly probable, these two aspects can be reduced to one, but it is not necessary for me to assume that this reduction is possible.) Both these consist of a field, extending theoretically throughout space-time. The gravitational field consists in a certain distortion of space-time, making it everywhere more or less non-Euclidean, but particularly so in a certain neighbourhood, the neighbourhood in which we say the matter is. The electromagnetic field consists of "something" (the physicist cannot say more) which satisfies Maxwell's equations, and is likewise theoretically diffused throughout space-time, though with more intensity in a certain neighbourhood. As Einstein puts it:—

"Da nach unseren heutigen Auffassungen auch die Elementarteilchen der Materie ihrem Wesen nach nichts anderes sind als Verdichtungen des elektromagnetischen Feldes, so kennt unser heutiges Weltbild zwei begrifflich volkommen von einander getrennte, wenn auch kausal aneinander gebundene Realitäten, nämlich Gravitationsaether und elektromagnetisches Feld oder—wie man sie auch nennen könnte—Raum und Materie."[1]

In every little region of space-time, according to this view, there are two things to be considered: first, the metrical structure of the neighbourhood, which represents gravitation, and can be analysed into a number of superposed gravitational fields, each with a centre, which may be taken to be an electron; secondly, the electromagnetic field, which is similarly analysable. There are thus a number of things happening everywhere always. What we call one element of matter—say an electron—is represented by a certain selection of the things that happen throughout space-time, or at any rate throughout a large region. We cannot speak in any accurate sense of the "history" of a piece of matter, because the time-order of events is to a certain extent arbitrary and dependent upon the reference-body. Each piece of matter has, however, a "proper time," which is that indicated by clocks that share its motion; from its own point of view, this proper time may be used to define its history. But it must be understood that a piece of matter is only a convenient grouping of occurrences which extend throughout space-time; it is these occurrences, not matter, that physics accepts as ultimate.

These occurrences are ordered in a four-dimensional continuum called space-time, each "point" of space-time containing many such occurrences. There are no accurate large-scale metrical relations between occurrences in different regions, but within one small neighbourhood there are approximate metrical relations, which are more or less non-Euclidean according to the gravitational field in the neighbourhood. All ultimate physical relations are embodied in differential equations, and only hold accurately in the infinitesimal. There are no longer such things as straight lines of finite length, or time-intervals that are not very short. That is to say, all relations between distant occurrences, even those that we have been accustomed to regard as purely geometrical or chronological, proceed by propagation through the intervening region, like light.

It is into a physical world of this description that we have to fit our theory of perception.

Before proceeding to this task, there is a philosophical question to be disposed of. Mr. Strong says:—

"Mr. Russell accepts the phenomenalistic principle—as we may call the denial of the legitimacy of transcendence—and his theory is, in the main, the application of it to perception. Does he

[1] *Aether und Relativitätstheorie.* Rede gehalten am 5 Mai, 1920. Berlin, Julius Springer, 1920, p. 14.

adhere to it strictly everywhere? The question is pertinent; for a principle which you can disregard when it becomes inconvenient is perhaps only a prejudice."

I have never called myself a phenomenalist, but I have no doubt sometimes expressed myself as though this were my view. In fact, however, I am not a phenomenalist. For practical purposes, I accept the truth of physics, and depart from phenomenalism so far as may be necessary for upholding the truth of physics. I do not, of course, hold that physics is certainly true, but only that it has a better chance of being true than philosophy has. Having accepted the truth of physics, I try to discover the minimum of assumptions required for its truth, and to come as near to phenomenalism as I can. But I do not in the least accept the phenomenalist philosophy as necessarily right, nor do I think that its supporters always realise what a radical destruction of ordinary beliefs it involves.

I will try to make more explicit my attitude on this question. Mr. Strong says: "You cannot go beyond your own sensations, or the world as they present it to you" (p. 312). This position is not maintained by Mr. Strong on idealist grounds, but on grounds of straightforward theory of knowledge. His position is, I suppose, that we have immediate knowledge of our sensations, but that this knowledge is not of a sort to enable us to infer anything other than our own sensations. I should reply: (1) that we do not immediately know either our own sensations or anything else; (2) that no atomic fact can ever be demonstratively inferred from any other atomic fact; (3) that, assuming the validity of induction and analogy (on the lines set forth by Mr. Keynes), it is possible to make *probable* inferences from one fact to another; (4) that in such inferences the inferred probable fact need not lie within our experience or anyone else's; (5) that philosophy has immensely overestimated the importance of knowledge, which is merely a physical relation between physical occurrences, or at any rate does not differ from this in any important way.

(1) The question of "immediate knowledge" can only be treated historically; it only arises when we have reached the stage of Cartesian doubt. At this stage, we find ourselves with a system of beliefs as a going concern, and it strikes us that some of these beliefs are inferred, while others are not. It is difficult to define what is meant by an "inferred" belief. When, for example, you see a tree beginning to fall, you expect to hear a crash; but this belief as to the future has not been inferred by a logical process. It is, however, derivative from what you see; if your belief were challenged, you could allege what you see in justification. All beliefs which are in this wide sense derivative come within the scope of Cartesian doubt, unless some logical process can be found by which they might have been inferred from beliefs which are in no sense derivative, or at any rate not derivative from other beliefs. When we start to look for beliefs which are not derivative, we find,

at first sight, three kinds: perceptions, memories, and logical principles. To begin with the last: I suspect that logical principles are really always propositions about symbols, and are derivative from perceptions of geometrical (or quasi-geometrical) relations among symbols. That is to say: a logical principle never asserts that this can be inferred from that, but only that this symbol and that have the same meaning; the assertion that two symbols have the same meaning is based upon a relation between their forms.[1] It would take me too far from my theme to dwell further upon this question. As for memories, it might be thought odd to include them among non-derivative beliefs. I do not think one would naturally include them in the usual case, where what is remembered was perceived when it happened; but when, as sometimes occurs, we remember something which we did not notice at the time, it seems as if the remembrance had the same claim to be regarded as non-derivative as a perception would have. This brings us to perceptions. Mr. Strong does not discuss my analysis of perception, which, so far as I know, is orthodox; I assume that he does not seriously disagree with it. Thus a perception consists of two parts: (*a*) a core of sensation; (*b*) images and beliefs called up by the sensation through the influence of past experience. The second part is derivative in an important sense, and must certainly be included within the scope of Cartesian doubt, since the beliefs which enter into it are sometimes erroneous. The first part does not consist of beliefs, but is a mere occurrence, of just that kind with which physics is concerned and by which its theories are empirically tested. Moreover, it is a difficult question of theory to discover the sensational core in a perception, and it is highly doubtful whether it can be distinguished from the accompanying images except by assuming an external world with which it is correlated in a way that images do not exactly share. We are thus left with nothing immediate except the core of sensation, which is not knowledge, and is not itself immediately *known*.

(2) That no atomic fact can ever be demonstratively inferred from any other atomic fact is again a view which I have taken from Mr. Wittgenstein; it obviously hangs together with his view of logical principles. It is of course a view at least as old as Hume. I do not see how anyone can dispute it who examines the nature of logical inference. I do not mean to deny that from the fact that two propositions are true we can infer that each of them severally is true, nor do I mean to deny the validity of Barbara. But such methods do not give *new* knowledge, and I do not see how the methods of demonstrative logic can ever do so. An "atomic" fact is one which does not consist of two or more facts; it is implied that it is not general.

(3) On the question of probable inferences by induction and analogy, I am prepared for the moment to accept what Mr. Keynes

[1] I have adopted this view from Mr. Wittgenstein. See his forthcoming work on *Philosophical Logic* (Kegan Paul).

has to say, though I have no doubt that he has only laid down the broad lines of a theory which can be amplified. I assume in practice the validity of inductive methods as they occur in science, although I do not think that the results obtained are certain. In many cases they are far from certainty, but no other method will lead to results having a higher degree of probability. It is because of the absence of certainty that it is desirable to organise and interpret science in the way involving fewest assumptions; this is the reason why, in practice, I approach as near to phenomenalism as I can without destroying the whole edifice of science. What is involved is not an absolute philosophical principle, but a method of securing a higher degree of probability.

(4) When inferences are made by analogy and induction, what is inferred need not lie within our experience or anyone else's. It is clear, in the first place, that we only employ such inferences when what we infer does not lie within our present or remembered experience. We therefore habitually assume that they are valid as applied to future experience. If so, what can prevent them from being valid as applied to something not experienced at all? There is of course the idealist position, according to which it is logically impossible for anything to exist without being experienced; but this, I gather, is not Mr. Strong's position. His view is merely that there can be no valid inductive inference from what has been experienced to what will never be experienced. I do not know how he would justify this view. Of course it is true that what is not experienced cannot be directly verified, but it can form part of a body of hypothesis of which other parts can be verified. It is natural to suppose that Neptune existed before it was discovered. If you see your cat running away with a fish which was in your larder, it is natural to suppose that the cat has been in the larder. Such inferences transcend experience in the way which Mr. Strong regards as illegitimate; but I do not see in what respect they fail to conform to the canons of inductive inference.

(5) Since Kant—perhaps since Hume—philosophy seems to me to have overemphasised the importance of knowledge, and the difference between what we know and what we do not know. Perhaps the trouble goes further back, to the Cartesian emphasis on the difference between mind and matter. It is clear that Mr. Strong regards our visual perceptions as something very different from what physics treats as light, and that his reluctance to infer beyond experience is bound up with this belief that, if there is anything beyond experience, it must be very unlike sensations. I believe this to be a mistake. To my mind, the world is full of particulars of the sort dealt with by physics, and some of these particulars (namely those in places where, as we say, there is a brain) have peculiar effects which are called "being known" or "being experienced". I think that particulars (of which there are many in one "point" of space-time) can be collected into sets of such a sort that two neighbouring members of the same set differ very little.

I think that when I see (say) a penny, what I perceive is one member of the system which is the momentary penny, and that it is that member which is situated (according to one meaning of "situation") in a certain part of my brain. I think that, very near this part of the brain, there are closely similar unperceived particulars which are other members of the momentary penny; there is no solution of continuity in passing from what I perceive to the outside particulars dealt with by physics.

If this view is correct, a mental occurrence is to be called a "perception" when it has a certain kind of relation, based upon certain differential laws of change (those of perspective, to the first order), to a number of other occurrences all linked with each other in the same way. Common sense imagines that there is a "thing" which "causes" all these occurrences, but that is an unnecessary hypothesis, which is avoided by defining the "thing" as the group of these occurrences. Thus a "perception" is a member of a thing occurring in a place where there are mnemic effects, and it is these mnemic effects which give rise to what is called knowledge of the thing.

Why should such a theory be thought probable? (I do not claim that it is more than probable.) (*a*) Because it harmonises physics, the physiology of the sense-organs, and psychology. (*b*) Because it fits perception into that correlation by differential equations to which all physical laws have been reduced, and avoids treating perception as a case of action at a distance; in other words, because it is in harmony with the principle of continuity, which, though not logically necessary, has been found increasingly fruitful in science. (Continuity here is not to be understood in a strict sense, but only in an approximate sense. In its strict sense it is incompatible with the theory of quanta, and very likely false.)

My view of the relation of what we perceive to physics is the same as that of Dr. Whitehead, who first persuaded me to adopt it. I do not think that he would agree with my psychology in other respects, but in this matter the view set forth in his two books is practically the same as that which I am advocating. He holds, as I do, that colours and sounds and secondary qualities generally should not be extruded from the physical world. The habit of shutting them out he calls the "bifurcation of nature". But he still allows a bifurcation between nature and mind, perhaps only because he deliberately excludes mind from his theme. I wish to include nature and mind in one single system, in a science which will be very like modern physics, though not at all like the materialistic billiard-ball physics of the past. A great deal of work will be required to show in detail how the data of sense are to be fitted into physics. What Dr. Whitehead and I have done so far is only a small part of the necessary work, which probably neither he nor I will be able to complete. I only want, as yet, to recommend the general point of view as a possible one, which deserves to be worked out.

I will end with a discussion of some special points raised by Mr. Strong. On page 309, he objects to the theory that, at a place from which a number of objects are visible, perspectives of all of them exist, on the ground that there is need of a lens to separate out the different light-rays. He admits, however, that "the perspectives can by analysis be separated out," and that is quite enough for me. You cannot by analysis separate out what was not there. He argues that, apart from something like a lens, "what exists there is only a synthesis of effects, and not anything like the stars from which the rays proceeded". Up to a point, this is true, and it accounts for the vagueness of perception. I emphasised this point in *Analysis of Mind*, pp. 135-136.

Space comes next. "What first strikes one in this theory is the curious reversal of the spatial position of objects which it seems to involve—objects being apparently everywhere except in the place where we see and feel them" (Strong, p. 310). As I explained in my book on the *External World* (which, however, laid too little stress on relativity), we have to start with a private space-time for each percipient, and generally for each piece of matter. The correlation of these with the constructed public space-time is a long piece of work, but obviously feasible. The "place where a particular is" is ambiguous; it may mean the place where it is in its perspective, or the place where it is in the system which is the physical thing of which it is a member, or the place where this thing is in public space-time. When these distinctions are borne in mind, Mr. Strong's paradox disappears. The quotation from Einstein with which I began shows that my view is in harmony with modern physics.

Mr. Strong next objects to the similar paradox as regards time, namely that the moment in public time to which an occurrence is to be assigned is earlier than the various moments in public time to which are to be assigned the particulars which are members (or "appearances") of the occurrence at various places. The answer here is essentially the same as before. Public time is a convention, which may be fixed in many equally legitimate ways; it may happen that A is before B according to one legitimate convention, while according to another B is before A. All this is already in the special theory of relativity. One need not therefore treat the time-order of events with any undue respect.

One more point: "We may draw one inference from these paradoxes, and that is that the object, as physical science conceives it, is not correctly defined as the *system* of all the perspectives (even of the 'regular' ones, *i.e.*, those undistorted by the interviewing medium), but is rather their mathematical limit" (Strong, p. 311). I myself suggested this view in my book on the *External World*, but rejected it for the reason that there is no limit to which the appearances approach. For this reason, in *Analysis of Mind* (pp. 106-107), I defined a piece of matter as that set of appearances to which the set approximates which consists of a

given appearance together with all those others which would exist if the given appearance were regular. This is a limiting *set*, not a limiting single appearance, and it exists when the limiting single appearance does not. The device is essentially the same as that of defining an irrational number as a certain class of rationals. It must be understood that a "piece of matter" is not anything real, but merely some constructed object having properties which enable us to state shortly facts or laws concerning a whole set of particulars that are real. In defining a piece of matter, therefore, we are to be guided solely by convenience.

There are other points in Mr. Strong's article which I should like to deal with, but I think what I should have to say about them can be inferred by the reader from what I have already said. I will, therefore, close this discussion, which is already long enough, by expressing gratitude to Mr. Strong for having brought into prominence so many important points.

BERTRAND RUSSELL.

REJOINDER.

With all respect to Mr. Russell, I doubt whether molecular physics and the Einstein theory are relevant to the question. Perception on its physical side is a relation of the large-scale sort, like that by which an animal seeks food and avoids danger, is not injured by poisons that are outside his body, does not hear a sound that is too far away or too faint, and does not see in the dark, despite the emanations from objects. In short, there is a clear distinction between the organism and its environment, and Mr. Russell must not use relativity to undermine the foundations of biology.

I agree with him in more respects than he, through having misread (the fault, I am sure, is mine) a sentence that was meant ironically, imagines. *I* do not deny that we can "go beyond our sensations"—on the contrary, that is just what I assert, against Mr. Russell (when he says that the thing of common sense is "an unnecessary hypothesis"). But I agree with him that a sensation is not *intrinsically* self-transcendent or knowing, and that it is not immediately known; I agree with him that perception rests on a purely physical relation; and my aim, like his, is to bring nature and the self together into one single science which shall be like physics. But I do not believe that perception *is* a purely physical relation—I believe that it is one of significance; and (here I come to the vital issue between us) I hold that the "core of sensation" —quite apart from the images—*serves as the sign of*, and is the part of the self that enables us to know, what Mr. Russell would call the rest of the object outside the body, and what I call the object.

(1) Though objects consist of groups of electrons, it is not the mere radiations of the electrons that enable us to perceive. In the first place these radiations, after they reach the brain, are not a part of the object, and it is a misuse of language to say that a table, when I see it, is partly in my brain, or that a star which has been extinguished, but rays of light from which continue to reach my eyes, still partly exists. Yet this is the device by which Mr. Russell and Mr. Whitehead would satisfy common sense, and include colours and other secondary qualities in the object. In the second place Mr. Russell (fortunately for him) recognises that the sensation is tied to and varies with the brain, and this recognition (unusual, I think, with neo-realists) has put him in a difficult position. If he would not admit the 'miracle of knowing' (which is not a miracle at all), he must (in his physics, not in his philosophy)

bring the object bodily into the brain. In truth, an object perceived is no more in the brain than one seen in a mirror is really in the mirror—in fact the one kind of in-being is exactly like the other.

(2) Mr. Russell has slipped too easily out of my difficulty about the lens. The intra-cerebral effects due to radiations from an object, like the image on the retina, form a 'perspective' (if you mean by that a flat picture, or something whose hitherward end is a flat picture); but they do so because the parts of the brain-process are arranged in the same way as the parts of the object, and this is impossible without a lens. The radiations outside the body have no perspective form; they are mere effects, and effects lost in a synthesis with other effects; to say that they are perspectives is as if you said that a block of marble consists of statues. Thus Mr. Russell's plan for securing the continued existence, I do not say of objects (for the effects do exist continuously), but of 'perspectives,' comes to naught. There are no actual perspectives except when some one perceives.

(3) It follows from this that there can be only one perspective in the brain at a time. This perspective is not lodged in a point, but in an extended field, an area. It is not true, then, that at a neighbouring point in the brain there is another actual perspective; other actual perspectives are got, not by moving to another point in the brain, but by moving the brain to another point—exactly as if it were a camera.

(4) Mr. Russell's perspectives are of course not really *in* the brain—they are merely dependent upon it; and they are not flat pictures merely, but *views*. Now that which makes the difference between a flat picture and such a view (apart from the physical character of the one and the, shall we say, metaphysical character of the other) is the depth. And it is only the length and breadth in the perspective that are immediately tied to the process in the brain; the depth depends on the adjustment of the optical muscles and the way in which we react. Moreover, I think it is a fact of observation that depth is not sensible in the same way, the same *visual* way, that length and breadth are—depth is not coloured. These are the facts that seem to me to justify the view that the visual *sensation* has only length and breadth.

(5) A lower animal, with visual sensations but whom we may suppose to be without images, refers the sensation to the outer object by the way in which he reacts; and reposes in the reality of the object something which we may call instinctive *trust*. So long as he does that, the vision of the object, what I have called the view, appears to him; but if he should drop his outwardly directed attitude, he would be left with the mere flat picture, the sensation. But suppose he should say to himself—while always *acting* as if he saw something external—that theoretically, and as a matter of economy of assumptions, the object was "an unnecessary hypothesis": he would now have remaining, not the sensation, but the view or 'perspective'.

If, now, this philosophic animal supposes views to exist when nobody has them, and to be as numerous as physical points, he will be a sort of neo-realist, and his philosophy may be described as comminuted Leibniz. But perspectives, in this sense, are not as numerous as physical points, they are only as numerous as actual brain processes; they do not exist actually when no one is seeing, but only as possibilities; and perception in truth is a function belonging only to animals, not, as Leibniz thought, to every particle of matter. If, recognising these things, our philosopher contents himself, apart from his own actual perspective, with other perspectives that are mere possibilities, but conceives the perspective as something that is at once an appearance and a sensation, a view and a picture, his 'perceptions' will have changed from those of Leibniz to those of Hume. If, again, he clears the appearance of its confusion with the sensation, and squarely throws the external world overboard, interpreting it as his own egoistic creation, his one perspective will be not less atomic, but it will be that of Fichte.

But suppose he recovers some measure of his original *trust* in the external—perhaps through the consideration that other people's sensations are outside his own. Economy would now dictate that he should stop short with sensations—I mean with that external thing which he looks back at when he apprehends a sensation. Since it is at least certain that there is a sensation somehow tied to his own brain-process, which is necessarily external to the mind of an anatomist viewing that brain-process, he may not unnaturally conclude that what the anatomist sees *is* the sensation, and then, by analogy, that so perhaps objects and events external to himself are in their inner nature sensations, or like sensations: and the philosophy that results will be that of Fechner and Clifford. It seems to me that the direction in which Mr. Russell and his relativist friends are tending is this last.[1]

C. A. Strong.

[1] See Eddington, *Space, Time and Gravitation*, p. 192.

SOME REMARKS ON RELATIVITY.

PROBABLY, by now, even philosophers have had enough of relativity, but perhaps a few remarks on Miss Wrinch's discussion of the Methodology of Relativity (MIND, April, p. 200) may be of interest; and also in this connexion I should like to point out—in a few words—what seems to me to be a grievous logical error in the theory of relations as expounded by some of Einstein's philosophical followers.

As Miss Wrinch points out, "there are now various different views of the characteristics of space" (and Time?) "held by different writers on Relativity," but "there is still something of fundamental importance in their treatment of the notion of Space" (and Time). In the second paragraph of her article this common fundamental point is expressed by saying that "There is nothing in the External World to which we can point as being represented by the symbol for space". We may express this by saying that while the words "Space" and "Time" have meaning, they do not denote objects. According to the Absolute Theory, however, Space and Time are real existent bodies or series of points and moments; physical objects are related to Space and to Time, and Space and Time are related to physical objects, for example things are *in* Space, or occur *at* the same moment and so on; and in general the various spatial and temporal relations contain reference to points of space or moments of time.

With the Relative theory all these points and moments are swept away. Spatial and temporal relations hold directly between physical objects and their full and complete analysis contains no mention of points of Space or moments of Time or any object that might be called Space or Time; in the analysis of spatial relations Einstein regards Space as an unperceived, unreal and unnecessary *tertium quid*. With this theory, propositions like '*a* is in Time' simply mean '*a* is before, simultaneous or after something,' *i.e.*, *a* is temporally related, '*b* is in Space' means '*b* is spatially related to something'. This is a general characteristic of the treatment of Space and Time by Einstein and his followers and I think it is the one to which Miss Wrinch wishes to draw our attention, but I demur from her assertion that—in the language of Modern Logic[1]—"it consists in using Space as a description".

(*a*) It is more correct to say that it consists in using "Space"

[1] The language of modern logic seems at the moment to be the language of the *Principia Mathematica*.

as an 'incomplete symbol'. "Incomplete symbol" is a rather unhappy phrase, it would be better to speak of "disappearing symbols". An incomplete symbol may be defined as one such that if it occurs in the common expression of any proposition p it does not occur in the logical analysis of p, that is in the determinate and logically accurate expression of p.[1] Thus an incomplete symbol appears in the expression of ordinary thought and even in the abbreviations of logic, but disappears from the full expression of precise and accurate thought. And this is exactly what happens to the symbols "Space" and "Time" in the *formulations* of the theories of relativity. The words "Space" and "Time" may occur in writings *about* the theory of relativity but not in the precise and accurate formulation of the theory itself.

(*b*) The truth about "Space" being a description seems clear. The actual word "Space" is not used as a description either by the supporters of the Absolute or the Relative theory, but both parties use spatial relations as descriptions or as parts of descriptions. For the upholders of Absolute space the word "Space" denotes a real object or set of points and for their opponents the word is a disappearing symbol, that is so far as they speak with logical precision they do not use it at all. But spatial relations,—or rather the symbols expressing spatial relations, are used as parts of descriptions by both parties.

Consider the examples given by Miss Wrinch. "The building on my right is loftier than that." The symbol "The building on my right" is a description, whatever may be the true theory of Space or the true nature of the relation 'To the right of'.

Similarly "Equiangular triangles are equilateral" is a proposition analysable into the form—

$$(x) . f(x) . \supset . g(x)$$

with either the Relative or the Absolute theory.

Hence we cannot capture the *distinctive* characteristic of the relative theory by saying that it uses Space or spatial relations as descriptions.

Perhaps these two points can be exemplified and made clearer by considering the last two sentences of Miss Wrinch's discussion; they are "But whichever part of the general investigation is being undertaken, not in the case of any one of them is it significant to ask 'What is Space'. It is the properties and not the intrinsic nature of space which is the subject of investigation."

Discussing the latter sentence first, it should be rejected for the reason that any investigation of the predicates of an object involves an investigation of its qualities and this is the same as an investigation of its intrinsic nature. It is more correct to say that with the Theory of Relativity the subject of investigation is not space or time but the spatial and temporal properties of *objects*, for space

[1] This at least is the sense in which Russell uses it when he speaks of a class as an incomplete symbol.

and time are mere symbols which disappear when we speak with logical precision. This is the reason why, for the theory of relativity, it is never significant to ask "What is Space (or Time)?" For the symbols "space" and "time" can never be put in any really precise proposition.[1] They are in fact disappearing symbols.

Another point which seems worthy of careful consideration may be briefly expressed by saying that Einstein and some of his followers use the words that are used to denote spatial and temporal relations, in an ambiguous manner. Let me explain this by Einstein's use of the word "Simultaneous" as defined by him in his *Theory of Relativity*, Chapter VIII. In that chapter Einstein points out that the ordinary use of the word Simultaneous is of no use to Physics except when used as connecting two objects which can be observed together. To overcome this difficulty he gives a definition of the way he proposes to use the word. His use of the word may be provisionally defined like this. Consider two flashes of lightning F_1 and F_2: then we define F_1 as being simultaneous to F_2 if the crests of the light waves radiating from F_1 and F_2 reach some observer O situated at M the middle point of the line $F_1 F_2$, simultaneously. Now if we carefully consider this definition we see that it uses the word "simultaneous" in two quite distinct and different ways. Let us call these two relations 'primary simultaneity' and 'secondary simultaneity'. The former represents the ordinary use of the word simultaneous, the latter Einstein's use. We may now somewhat emend our definition and say F_1 and F_2 are secondarily simultaneous when the crests of the light waves radiating from them reach the observer O primarily simultaneously.[2] This shows that primary and secondary simultaneity are quite different relations. Primary simultaneity is a simple unanalysable relation, symmetrical and transitive. Secondary simultaneity is a complex relation analysable in the way that Uncle and Grandfather are analysable, *i.e.*, it consists in being related to a term or terms standing in between the two related by the relation in question. In this case the relation of F_1 to F_2 consists in F_1 having the relation of 'radiating' to a certain wave crest of light say c_1, c_1 having the relation of 'primary simultaneity' to another wave crest of light c_2, and c_2 being 'radiated by' F_2. The importance of this distinction between primary and secondary simultaneity is simply that, if the above is correct, then it disposes—once and for all—of the assertion that Einstein has proved *all* spatial and temporal relations to be relative. Primary simultaneity is *not* a relative relation, things either are or are not primarily

[1] This is not a contradiction. In this sentence the symbol "space" is used to denote the symbol "space," *i.e.*, the actual word "space" and not something beyond the symbol. It is, of course, only when "space" is used in its usual sense that it is a disappearing symbol.

[2] Further qualifications are still required to make this definition precise, they will be considered further on.

simultaneous, without any further qualification whatsoever. We may go a little further in our opposition to some philosophical writers on relativity; but first let us make our definition somewhat more accurate, although it will still be provisional. The aim and spirit of Einstein's definitions is expressed by his dictum, "The concept does not exist for the physicist until he has the possibility of discovering whether or not it is fulfilled in an actual case".[1] Thus instead of setting out on the perhaps impossible task of finding some instrument for telling whether physical objects are or are not primarily simultaneous, he constructs the relation secondary simultaneity of such a nature that we can tell whether objects are or are not secondarily simultaneous with the senses and instruments at our disposal. Now it will be admitted that we do not observe light waves but the sense-data or sensa caused by the impinging of the light waves on the eye and we may agree that the sense-data are primarily simultaneous with the actual striking of the wave on the eye. Thus, keeping to Einstein's dictum, those objects which must be primarily simultaneous in order for F_1 and F_2 to be secondarily simultaneous will be objects which we can observe; they will therefore be two sense-data of F_1 and F_2; and our definition will now read, F_1 and F_2 are secondarily simultaneous when the two sense-data s_1 and s_2, 'of' or 'manifested by' F_1 and F_2 respectively and observed by the observer O at the middle point M, are primarily simultaneous. Similar definitions may be given for secondarily before and after.

Now while agreeing with Einstein that we have no means of telling whether physical objects—as distinct from sense-data—are primarily before, simultaneous or after each other, it by no means follows that they are not related by these relations; and although these relations may not exist for the physicist (as connecting physical objects; for they do exist, even for the physicist, when connecting sense-data) they do exist for the philosopher.

The theory of relativity ignores the relations of primarily before, simultaneous and after except when holding between sense-data and by dealing with the corresponding secondary relations it has achieved some most important and valuable results, but this does not prove that the ignored relations do not exist. Thus despite all the asseverations to the contrary, it is still possible to maintain that every object is related by an absolute temporal relation to every other object, although in many cases it is impossible to tell whether an object is primarily before, simultaneous with or after another specified object.

It may be interesting, and may perhaps further elucidate the difference between primary and secondary simultaneity, to consider, from a logical point of view, what is meant by saying that secondary simultaneity is a relative relation, and how it happens that it is a relative relation. We have seen that when Einstein says 'F_1 is simultaneous to F_2' he ought to say 'F_1 is secondarily

[1] *Theory of Relativity*, p. 22.

simultaneous to F_2'; and by this he means that two crests of light-waves radiated by F_1 and F_2 are primarily simultaneous, or more correctly that two of the sense-data S_1 and S_2 manifested by F_1 and F_2 are primarily simultaneous; and he must then definitely specify S_1 and S_2 out of the many sense-data manifested by F_1 and F_2. "F_1 is secondarily simultaneous to F_2" means therefore that a certain pair of the sense-data manifested by F_1 and F_2 are primarily simultaneous; but unless we specify *which* pair, the assertion remains ambiguous and indeterminate, for there is a very large, if not an infinite, number of pairs of sense-data manifested by F_1 and F_2 that are or could be observed by persons situated around F_1 and F_2. Einstein restricts the range of pairs of sense-data by framing his definition so that F_1 is secondarily simultaneous to F_2 when the pair of sense-data, manifested by F_1 and F_2 and observed by a person situated on the plane passing through the middle point of the line $F_1 F_2$ and at right angles to it, are primarily simultaneous. This however is still indeterminate, and the whole of the relativity of simultaneity results from the indeterminateness of this definition. With this indeterminate definition the assertion that F_1 is secondarily simultaneous to F_2 is equivalent to saying that a pair of sense-data are primarily simultaneous; but this pair of sense-data is not uniquely specified, being merely specified as one pair out of a class of pairs. The assertion 'F_1 is secondarily simultaneous to F_2' is really about four terms, F_1 F_2 and two sense-data; but while it uniquely specifies F_1 and F_2 it does not uniquely specify the sense-data. Assertions of this type may be called relative, if, when you qualify the assertion and in doing so uniquely specify the objects otherwise not uniquely specified, some qualifications make the complete assertion true and some false. This is exactly what happens with 'F_1 is secondarily simultaneous to F_2'. The qualifications such as 'from such a point of view,' 'as measured from such a reference body,' etc., serve to specify the sense-data of F_1 and F_2 of which we are speaking. As is easily seen, because of the constant but finite velocity of light, if some of these qualifications give a true assertion then some others will give a false assertion. The proposition F_1 is secondarily simultaneous to F_2 may be compared with the proposition 'P is highly probable'. Both are really only half propositions. The former is about four objects F_1, F_2 and two light waves, or more correctly, F_1, F_2 and two sense-data, but only specifies half the objects, *i.e.*, F_1 and F_2; the latter is about p and a certain body of knowledge, but only specifies p.

This account of the relativity of simultaneity has been much longer than I intended, but if it is correct it shows, (1) that there are two meanings given to the word "simultaneous" as used by relativists and that only with one meaning is simultaneity relative. (2) That the relativity of simultaneity (*a*) gives the same amount of support to the theory of the Relativity of truth as is given by the relativity of propositions like 'P is highly probable,' which is no support at

all; (*b*) has nothing at all to do with the activity of minds. The qualifications 'for that observer,' 'as measured by so and so,' do not mean that the proposition "F_1 is simultaneous to F_2" is true for one person and false for another; as it stands unqualified it is really only half a proposition and is neither true nor false, the qualifications are only ways of completing it, and the reference to the observer is merely a way of uniquely specifying the two light waves or sense-data involved in F_1 being simultaneous to F_2: any other way of uniquely specifying these two light waves or sense-data would serve equally well.

(3) As regards subjectivity: (*a*) If we only loosely follow Einstein's dictum 'That a relation is not to be used unless we have a possibility of telling whether it holds in any actual case,' we can state the relativity of simultaneity for a world without minds or anything mental at all; (*b*) if we strictly follow the above dictum then science is forced to recognise that we do not observe physical objects but only the sense-data *of* physical objects. This may be a new truth for science, but it is not new to philosophy; see for example Mr. Russell's article on 'The relation of sense-data to physics,' published in 1914.

All the above arguments only apply to simultaneity, but I think they can be generalised to cover all the other relations dealt with by the theory of relativity. For example Dr. Wildon Carr in MIND, April, 1922, p. 177, says " . . . the straight line of every observer is curved for other observers." I suggest that he will find that such a proposition, if it occurs in the books of the relativists, does not mean that a line is both straight and curved, but rather something like this: "If the projection of a moving point on a plane P_1 is a straight line, then its projection on another plane P_2 where P_2 moves relative to P_1, is a curved line," or "If the appearances (*i.e.*, the sense-data) of a moving point from one body are straight, then the appearances from another body are curved". And in general in all such propositions there is a multiplicity of objects concealed by the brevity of expression.

The general conclusion of these remarks is that the theory of relativity from the point of view of philosophy would be more appropriately called the theory of half-propositions; that it has proved certain complex relations to be relative but that the relations usually denoted by the words "simultaneous," "before," "after," "straight," "curved," etc., are not relative; that we can only tell whether objects have these non-relative predicates when they are objects of immediate awareness, *i.e.*, sense-data; and that science is beginning to realise that we only observe the sense-data of physical objects, a view which is not new to philosophy.

The following flight of imagination may be of interest to philosophers and even to physicists.

"Once upon a time there was an earth inhabited by a race of men, all totally blind. Their distance perception depended on sound. In the course of time there arose an Einstein, blind, but

of infinite genius, and he propounded a theory of relativity. This theory was exactly the same as the modern theory of relativity except that where we say 'light' they said 'sound'. With this theory they proved many strange results; for example nothing could travel faster than sound. And using this theory two philosophers proved that all truth was relative. Yet it was absolutely true that mind alone was real; there was no substratum of any kind in nature; the monads alone supplied everything; and step by step the Hegelian dialectic carried the Universe into higher and higher degrees of truth and spiritual reality.

"But God smiled; and when He saw that man had become perfect in optimism and credulity, He sent another earth through the sky, which crashed into the blind men's earth; and all again returned to nebula.[1]

"For the truth of relativity was itself only relative, it related only to a small selection of temporal and spatial relations; and there was much in their world that was neither man-made nor man-measured but moved by the unmotived forces of nature."

Whether this is a true analogue of the modern theory of relativity I am neither sufficient philosopher nor physicist to decide. But it would be well if it were so; for who, having compared the idealism of the 'Reign of relativity' with the realism of 'The Dynasts,' will not agree that the latter rings more true?

R. Ainscough.

[1] Adapted from the story told to Dr. Faustus, as related in "The Free Man's Worship".

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VI.—CRITICAL NOTICES.

Logic, Part II. (Demonstrative Inference). By W. E. Johnson. Cambridge University Press, 1922. Pp. xx, 258.

The second volume of Mr. Johnson's great work on *Logic* deals with demonstrative inference, deductive and inductive. It is perhaps even more interesting than the first volume, on account of the extreme practical importance of its main subject, and also on account of the digressions on such matters as Magnitude and Symbolism. It covers the whole range of mathematical reasoning, and it also deals with those types of argument which Mill tried, not too successfully, to classify in his Inductive Methods. Incidentally it contains almost the only good criticism that has yet appeared on a number of fundamental, but rather technical, points in Russell's *Principles of Mathematics*.

The work opens with an Introduction, which clears up certain points in vol. i., and restates Mill's criticisms on the syllogism in terms of the distinction between Epistemic and Constitutive Conditions, which was drawn in the first part.

Chapter i. discusses the general nature of inference, and its connexion with implication. Mr. Johnson says that implication is "potential inference," and holds that, although implication and inference are distinct, neither of them can be understood except in terms of the other. He thinks that it follows from this that we ought rather to say "*p would* imply *q*" than "*p implies q*," and he actually adopts this mode of statement throughout the book. It seems to me that this is not true, and that it does not follow from the identification of implication with potential inference. If implication is potential inference, we ought no doubt to say "*p would* justify you in inferring *q* (if you knew that *p* was true), whenever *p* does imply *q*. But I cannot see why this should make us introduce the potentiality into the statement about implication, and say that *p would* imply *q* rather than that *p does* imply *q*. To take an analogy. We might say that "threatening" is "potential injuring". But this does not mean that we ought to confine ourselves to statements like "A would threaten B". On the contrary we say that "A does threaten B" whenever it is true that "A would injure B (if he could)". This criticism is not merely verbal, as may be seen from the following examples. I should say: (1) M*a*P and S*a*M *do* imply S*a*P; (2) M*a*P *would* imply S*a*P (if the premise S*a*M were added); and (3) M*a*P *would not* imply S*e*P under

any circumstances (because there would be illicit process of P). Now I do not see how (1) and (2), which are clearly different, could be distinguished in Mr. Johnson's terminology, since he would have to put (1) in the form "MaP and SaM *would* imply SaP". The phrase "would imply" seems only to be appropriate to cases like (2); and, if it be used for cases like (1), we are left with no appropriate expression for the former.

It is implied in ch. i. and definitely asserted in ch. ii, p. 30, that "there is no single relation properly called *the* relation of implication". What Mr. Johnson means is that to say that p implies q is simply to say that q could be inferred from p, and that this is true when and only when one or other of several specific types of formal relation hold between p and q. In ch. i., § 4, Mr. Johnson says that there are two fundamental relations between p and q, which justify inference from the former to the latter. These relations are formulated by him in two Principles of Inference, the *Applicative* and the *Implicative*. The Applicative Principle states that, if p be of the form *All S is P*, and q be of the form *The given S is P*, then q can be inferred from p. The Implicative Principle states that if p be a compound proposition of the form (x)-*and*-$(x$ *implies* $y)$ whilst q is of the form y, then q can be inferred from p. All deductive inference rests on these two principles; and, therefore, I take it, all implication depends on one or other of the two types of relation mentioned in these principles.

There is no particular difficulty about the Applicative Principle, but there is a question to be raised about the Implicative Principle. This professes to state one of the types of relation which must hold between p and q if p is to imply q. But it presupposes that p itself already contains two propositions x and y, of which the former implies the latter. The question at once arises: Of what nature is the relation between x and y, in virtue of which x implies y? If there be just two relations—the Applicative and the Implicative —which give rise to implication, it would seem that the implication which is involved in the very statement of the Implicative Principle must itself rest on either the Applicative or the Implicative relation. If this be so, I do not see how the Implicative Principle can be taken as expressing one of the two fundamental types of relation on which implication depends. It would seem that the implication which is involved in the Implicative Principle must at last rest on the Applicative Relation, on pain of an infinite regress. If so, the Applicative Principle is more fundamental than the Implicative Principle.

In ch. ii., § 3, p. 30, Mr. Johnson attempts a more accurate statement of the Implicative Principle, but it does not meet the difficulty that I have just pointed out. He there reformulates the principle as follows: "There are certain specifiable relations such that, when one or other of these subsists between two propositions, we may validly infer the one from the other". It is, I think, perfectly clear that this is *not* a reformulation of the Implicative

Principle, as originally stated on p. 11, and that it is not consistent with the statement on p. 10, that the Implicative Principle expresses one of the "two fundamental relations which will render the inference from p to q . . . formally valid." To say that *there are some* relations which will render the inference valid is not to state *one of the two* fundamental relations which justify inference. In fact it is obvious that the Implicative Principle in its second formulation would be true if implication rested on no other relation beside that mentioned by the Applicative Principle.

There is thus certainly some inconsistency in Mr. Johnson's language, and I am a good deal puzzled both as to what he really means and as to what is the truth of the matter. I would tentatively offer the following suggestions. (1) The Applicative Principle really does state one fundamental type of relation between two propositions, such that, whenever it holds, the former implies the latter. (2) If you grant the Applicative Principle, the Implicative Principle, in Mr. Johnson's second formulation, immediately follows. This is sufficient to show that the second formulation does not adequately express what Mr. Johnson means by the Implicative Principle; for he certainly understands by it something which is parallel to and independent of the Applicative Principle. (3) The Implicative Principle, as originally formulated, does express one of the relations on which implication rests. But it only applies to the special case where one of the propositions is a complex, one of whose parts itself involves an implication. And this implication must in the end presumably rest on some other type of formal relation than that which is formulated in the Implicative Principle. *If* it were true that there are only two fundamental types of relation which generate implications, it would seem that the Applicative relation must be more fundamental than the Implicative, in the sense that the implication which is involved in the premise to which the Implicative Principle is applicable must ultimately rest on the Applicative relation. But I do not know why there should not be *many* different formal relations which give rise to implications. And, although Mr. Johnson seems to hold on p. 10 that there are only two, he seems to make no such restriction on p. 30. (4) In fact I take it that there are many independent formal relations which generate implications. *E.g.*, if p has the form P, and q has the form (P or Q) they are so related that p implies q. And this depends neither on the Applicative nor on the Implicative Principle. What then is the *special* importance of the Applicative and Implicative Principles? (5) It seems to me that their great importance is as *generative* principles. It is by them, and by them alone, that we can deduce chains of new truths from a few suitable primitive propositions. The primitive propositions state certain independent and immediately obvious formal implications, like p implies (p or q). These give us premises of the kind to which the Implicative Principle can be applied. Again the Applicative Principle allows us to substitute what Mr.

Johnson calls "connected complexes" for the simple terms in the primitive propositions, and thus to reach new truths by what he calls "functional deduction". If we read a work like *Principia Mathematica*, we see that, once the primitive propositions have been laid down, all further progress is made by repeated use of these two principles. Mr. Johnson is therefore justified in the importance which he ascribes to them, though, as I have said, some of the statements which he makes about them seem to me puzzling, and at least verbally inconsistent.

Mr. Johnson next makes some very interesting observations on the applicational and the implicational forms of inference. As an example of a purely applicational argument he takes such an example as: "All propositions have predicates, therefore *Matter exists* has a predicate". Now the question arises: Is there not a suppressed premise, *viz.*, "*Matter exists* is a proposition"; and is not the argument therefore a syllogism, which Mr. Johnson regards as involving both the applicative and the implicative principles? To this he answers that the supposed premise is really, from the very nature of the case, superfluous. We cannot attach any meaning to the phrase *Matter exists* unless we know that it is a proposition, and it is therefore superfluous to state that it is a proposition. Mr. Johnson makes two statements about such propositions which are verbally inconsistent. On p. 14 he says that they are not genuine propositions. At the foot of the same page he says that they are propositions of a peculiar kind, which he proposes to call *structural*. A structural proposition is not simply verbal, for it is not about words. What it does is to assert a general category of the subject. But it does not add to our knowledge, because the subject has to be given to us under this general category before we can specify it at all in a judgment. A category is a determinable or set of determinables, and all judgment consists of specifying the determinate forms in which a subject exhibits those determinables under which it must be given to us if we are to be able to think of it at all. When a superfluous premise is added to convert a purely applicative argument into a syllogism, Mr. Johnson calls the premise a *sub-minor*.

We can now understand Mr. Johnson's analysis of the ordinary subsumptive syllogism. Take the syllogism: "All equilateral triangles are equiangular, the triangle ABC is equilateral, therefore it is equiangular". Mr. Johnson would analyse this somewhat as follows:—

Everything with sides and angles (M, P) is equiangular (p) if equilateral (m).

Therefore the triangle ABC is equiangular (p) if equilateral (m). (Applicative Principle.)

The triangle ABC is equilateral (m).

Therefore the triangle ABC is equiangular. (Implicative Principle.)

Here M and P are the determinables under which the object in

question is given. The major states an universal connexion between one determinate under M and one determinate under P. No premise of the form "The triangle ABC has sides and angles" is needed, for such a proposition is merely structural.

Mr. Johnson points out that it is possible to make a really implicative argument look applicative by introducing a superfluous major, just as it is possible to make a really applicative argument look implicative by introducing a superfluous minor. This would happen if you were to take the formal Barbara (MaP . SaM implies SaP) as a *premise* in some particular argument in Barbara. There is a positive inconsistency in doing this, for the principle of the syllogism in Barbara states that the premises of Barbara are by themselves *sufficient* to justify the conclusion, and you stultify this if you introduce the principle itself as a *further* premise.

The remaining point to notice in this chapter is Mr. Johnson's clear distinction between the constitutive and the epistemic conditions of valid inference. The constitutive condition is that the premises shall *be* true and shall *imply* the conclusion. The epistemic condition is that you shall be able to *know* that the premises are true and that they imply the conclusion without having to *know* beforehand that the conclusion is true. It is clear that in a great many cases, *e.g.*, where the major is proved by induction, or is self-evident, or is accepted on authority, and where the formal connexion between it and the conclusion can be intuited, these conditions are fulfilled.

We may take chapters ii. and viii. together, for they introduce us to the unusually extended sense in which Mr. Johnson uses the term *induction*. The Applicative and Implicative Principles assume that we have already got a number of universal premises to work with. How do we get these? Always by something of the nature of induction, according to Mr. Johnson. Now this might at first make the reader think that Mr. Johnson is an empiricist; but this is far from being so. We do not start by seeing axioms in their generality, we get to know them by reflecting on particular instances. The process by which this happens is called *Intuitive Induction*. Mr. Johnson defines Induction in ch. viii., as a process by which we start from certain instantial premises and reach a conclusion which is a generalisation *of these premises*. (It would not be enough to say that the conclusion is wider than the least wide of the premises, for, as we shall see, Mr. Johnson holds that many purely deductive arguments have this characteristic.)

Now I think that this definition of induction would generally be accepted. And it is certain that the process of seeing an axiom by reflecting on particular instances of it answers to this definition, if it be a process of inference at all. Hence Mr. Johnson is quite consistent in saying that all principles and major premises are ultimately reached by some kind of induction. And it does not make him an empiricist, for an empiricist would hold that they are all reached by that particular kind of induction which Mr. Johnson

calls *Problematic*. Problematic induction leads only to probable conclusions, needs special axioms or postulates, and is left to be treated in the next volume. But there are three processes of inference which answer to the definition of induction, lead to conclusions which are as certain as their premises, and are treated in the present volume. These are Intuitive, Summary, and Demonstrative Induction ; and it is the first of these which establishes the fundamental principles of inference themselves, and the self-evident axioms which form the major premises of pure logic, mathematics, etc.

Mr. Johnson distinguishes two principles of Intuitive Induction which he calls the *Counter-applicative* and the *Counter-implicative* Principles. The first may be stated as follows: "Sometimes we can see that what is true of this instance is true of any other instance, and then we can be sure that it is true of all instances". The second can be stated as follows: "Sometimes when we have made a particular inference which is valid we can see that its validity is due to a certain type of formal relation which holds between premise and conclusion". I can then conclude by the Counter-Applicative Principle that any argument of this form will be valid. These principles cannot be formulated so that we can safely use them blindly, as we often can the direct Applicative and Implicative Principles. Insight into the special subject matter which forms our instances is necessary.

In ch. ii. we are given a very useful division of propositions into a hierarchy, which I will now exemplify. We have (1) Supreme principles of inference, such as the Applicative, Counter-applicative, etc. (2) (*a*) Formal axioms, such as *p implies q-or-p*. (*b*) Formal propositions deduced from these axioms by the deductive principles in (1), *e.g.*, *if q implies r then p-implies-q implies p-implies-r*. (3) (*a*) Particular instances of (2*a*), from which (2*a*) are derived by principles of intuitive induction contained in (1), *e.g.*, *Jones is a knave implies* (*Brown is a fool*)*-or-*(*Jones is a knave*). (3) (*b*) Particular instances of (2*b*), *e.g.*, the particular syllogism in Barbara to prove that George V is mortal. (3*b*)-propositions follow from the corresponding (3*a*)-propositions by the Applicative Principle. The dividing line between (2*a*) and (2*b*) is not of course perfectly sharp, since different propositions are taken as axioms in different systems. (4) (*a*) Experientially certified propositions, like *This patch is red*. (4) (*b*) Deductions from these made in accordance with the axioms and principles of the higher levels. The distinction between the two sub-groups here is again not sharp, because no two people are agreed as to precisely what is certified by mere sense-experience and what is inferred from it.

Chapter iii. deals with Symbolism and Functions, and is far the best account that I know of these subjects. It contains a severe criticism on the inconsistencies of Mr. Russell's account of propositional functions. Mr. Johnson begins by dividing symbols into *shorthand* and *illustrative*. The former are simply abbreviations

for words like *and*, *or*, *implies*, etc. They stand for formal or logical entities and may be called *formal constants*. This means that they have precisely the same significance wherever they occur, and that this significance is part of the subject matter of pure logic. The word *white*, or any shorthand symbol that we might use for it, is a *material constant*. That is, it is the name of a certain definite entity which does not belong to the subject matter of pure logic. Certain shorthand symbols might, for all we know at the outset, be either material or formal. The figure 2 would be an example. We might reasonably think that it was a material constant, like *white*, but it turns out to be formal if we accept Russell's and Whitehead's proof that arithmetic contains no fundamental concepts which do not belong to pure logic.

Illustrative symbols are the P's and Q's, x's and y's, of formal logic and algebra. Mr. Johnson calls such symbols *variables*. It will be noticed that he confines the names *constant* and *variable* to words and symbols, and does not apply them to what these denote. According to him, illustrative symbols are singular names of a peculiar kind. Their peculiarity is that they "stand for" any one of a whole set of ordinary singular names. Thus in "x is mortal" the symbol x stands indifferently for the names "Socrates," "Plato," "The Man in the Iron Mask," and all other names (say) of persons. There seems to me to be a verbal inconsistency in Mr. Johnson's statements on this point. After saying that s in "s is p" stands for any substantive-*name*, he goes on to say (p. 60) that "p stands for any one indifferently assignable adjective comprised (say) in the class *colour*". It is clear that he here means *adjective* and not *adjective-name*; for the adjective-name "red" is not comprised in the class *colour*, whilst the adjective red, which it denotes, is. Now it is clearly inconsistent to make the variable s stand for substantive-*names* and not substantives, whilst you make the variable p stand for *adjectives* and not adjective-names. I think the verbal confusion arises through the ambiguity of "standing-for," which sometimes means "acting as representative for" and sometimes means "denoting". S stands for the names "Socrates," etc., in the sense that it equally represents any one of them. P stands for the colours red, etc., in so far as it *represents* equally any one of a set of names each of which *denotes* a certain colour.

Variables are closely connected with functions, and functions according to Mr. Johnson are bound up with constructs. A function is the identity of form which can pervade many constructs constructed out of different terms. Thus p-or-q and r-or-s are two constructs out of r and s, p and q, respectively. And both exemplify the alternative function. The terms in a construct, for which substitutions may be made without changing the nature of the construct, are called *variants* by Mr. Johnson; and the illustrative symbols for variants are of course variables.

This definition of *function* is consistent with the sense in which

it is used in mathematics. Mr. Johnson has no difficulty in showing that Russell's various uses of the term *propositional function* are consistent neither with each other nor with the common usage. The whole of what Mr. Johnson says on this subject is well worth reading, and seems to me perfectly conclusive.

One other very interesting point in this chapter is Mr. Johnson's view that verbal phrases like *Smith-and-Brown* or *Smith-or-Brown* do not denote genuine logical constructs, whilst phrases like *white-and-hard* or *white-or-hard* do. The only apparent exception that I can think of would be propositions like "Smith and Brown are a couple," which clearly cannot be analysed into "Smith is a couple and Brown is a couple". But Mr. Johnson would no doubt meet this by his distinction between the conjunctive and the enumerative *and*.

Chapter iv. deals with the ordinary formal development of the syllogism. I need scarcely say that this is done as well as it could be done. There are just three points worth special mention. (1) Mr. Johnson criticises the ordinary method of reaching the valid moods by laying down rules and striking out the moods that conflict with them. He justly points out that this will not suffice to guarantee the validity of those that are left. For this a positive set of dicta is needed. These Mr. Johnson supplies. (2) In place of the by no means obvious rule that a negative conclusion needs a negative premise Mr. Johnson substitutes the proposition that three classes S, M, and P, can be co-extensive. As a matter of fact the rule in question is only needed to cut out the mood *PaM . MaS implies SoP*. To deny the validity of this is equivalent to saying that S*a*P, M*a*S, and P*a*M are consistent; and this is equivalent to Mr. Johnson's rule, as the reader can easily see for himself. (4) Mr. Johnson makes a practical remark which all who have to teach elementary logic will do well to bear in mind. In giving examples of syllogisms we should take care that our premises and our conclusions are neither obviously true nor obviously absurd. The former error will make our students confuse formal validity with material truth, the latter will make them think that the syllogism is a mere game. Mr. Johnson recommends examples from casuistry, economics, and politics, and supplies some amusing examples about the veracity of my Lord Grey, which he apparently regards as neither axiomatic nor obviously incredible.

Chapter v. deals with what he calls the *Functional Extension of the Syllogism*. Here the major is a numerical law of the form $P = f(M)$, *e.g.*, the gas law. The minor is of the form: "In this case M has the value m". The conclusion is: "In this case P has the value p, which $= f(m)$". (Where Mr. Johnson got his extraordinary expression for the gas law—T = 239PV—is more than I can imagine.)

The rest of the chapter is mainly taken up with cases where we are given (say) P as a function of A, B, C, D, and we try to get (say) A as a function of P, B, C, D.

Chapter vi. is extremely important; for it deals, under the heading of *Functional Deduction*, with all the reasoning of pure mathematics, except that of Euclidean geometry, which Mr. Johnson considers to have certain peculiarities of its own. The premises of functional deductions are equations of the form $f(A,B,C) = \phi(A,B,C)$ for all values of the variables. The argument is applicative, and takes place by substituting *connected* complexes for simple variants in these functions. If for A you substitute $(x + y)$ and for B $(x - y)$, for instance, the two expressions would be connected constructs because of the common terms x and y in both. To take a very simple example; from the formula $(a + b)(a - b) = a^2 - b^2$ we derive the formula $4xy = (x + y)^2 - (x - y)^2$ by substituting for a and b respectively the connected complexes $(x + y)$ and $(x - y)$.

Mr. Johnson points out two important characteristics of this type of reasoning. (1) It is demonstrative, and yet can lead to conclusions which apply more widely than the premises, and (2) it is impossible to reduce it to syllogistic reasoning. As regards the first point his meaning is the following. Suppose you start with a premise that involves two distinct variants, A and B. Then, if A be susceptible of n values and B of m, it is clear that the formula covers mn cases. Now substitute for A and B respectively the two connected complexes $f_1(A,B,C)$ and $f_2(A,B,C)$, and suppose that C is susceptible of p values. We shall derive a general formula about A, B, and C which will cover mnp cases. If we are dealing with ordinary algebraical formulæ all our variables are supposed to be capable of representing any number, and so $m = n = p = 2\,\aleph_0$, the number of the arithmetical continuum. In this case the actual *number* of cases to which the conclusion applies is the same as the number to which the premise applies; for $mnp = mn = m$, when we are dealing with transfinite cardinals. Nevertheless, it remains true that the cases covered by the conclusion contain all and more than all the cases covered by the premise; just as Space contains all and more than all the points on any straight line, although the cardinal number of points in a line is the same as that of the points in the whole of Space.

There is a point here which Mr. Johnson does not bring out explicitly. Suppose that your premise was a formula whose variants were definitely confined within a certain range of values, could you be sure that all substitutions of connected complexes would be valid? It seems to me that you could not. Suppose, *e.g.*, that your premise was a formula about X and Y, and that the values of X were restricted to integers between 0 and 3, and the values of Y were restricted to integers between 2 and 5. Then any attempted argument which proposed to substitute (X + Y) for X would break down. For the only possible values of (X + Y) would be 4, 5, and 6, all of which lie outside the range of possible values for X. Thus the fact that the range of variation of all the variables in an algebraical formula is the whole number-continuum seems to be an

important condition of the general validity of this type of deduction.

The second peculiarity of functional deduction may be illustrated as follows. By purely syllogistic reasoning we could not prove anything about the numbers which are divisible by both 2 and 3, which is not also true of all numbers divisible by 2 and of all numbers divisible by 3. But by functional deduction we can prove properties which are true of this particular species of numbers and are not true of either of the genera to which it belongs.

The last point to notice in this chapter is the very severe criticism of Russell's *Principle of Abstraction.* Mr. Johnson agrees that Mr. Russell proves the proposition which goes under this name, provided we grant the reality of classes, which Russell himself afterwards attempts to deny. But he holds that the proposition which is proved is so tame as to be of no philosophical interest whatever. Mr. Johnson is no doubt right on both counts. But, as regards the first, I should think it would be quite easy for Russell to restate the Principle in terms of his "no-class" theory, for he does not get rid of classes and substitute *nothing whatever* for them. As regards the second, the criticism is perfectly valid against some applications which Russell made of the Principle in his hot youth. (I think I am doing him no injustice when I say that at one time he thought he had proved the absolute theory of time by the Principle of Abstraction.) But I presume that these were *péchés de jeunesse*, over which Mr. Russell would wish now to draw a veil.

Chapter vii. is a long and interesting one on the *Different Kinds of Magnitude.* I can only briefly indicate some of the more interesting points in it. The best previous treatment of the subject is of course in the *Principles of Mathematics.* (Mr. Johnson does not seem to be acquainted with the very difficult later theory of the *Principia*, which, so far as I know, no philosopher has yet dared to criticise or even mention.) Mr. Johnson differs a good deal from Mr. Russell. (1) He counts numbers as magnitudes. (2) He distinguishes them as *abstract* from *Concrete Magnitudes*, like lengths and temperatures. (3) He calls the latter *quantities*, whereas Russell confines this name to substances having magnitude, such as foot-rules. (4) He distinguishes between *extensional* wholes (classes), whose magnitudes are numbers, and *extensive* wholes, like areas and stretches of time. He brings out in a most admirable way the points of analogy and difference between the two. (5) He distinguishes between *distensive* and *intensive* magnitudes. The former seem to be degrees of difference, and their zero is identity. The zero of intensive magnitude is non-existence. (6) He holds a characteristic, and to my mind very doubtful, view that magnitudes of different kinds can be multiplied and divided by each other to give new kinds of magnitude, such as area and velocity. The more usual view of course is that it is only the numerical measures of the magnitudes that can be multiplied and divided. It seems to me that the following is an objection to Mr. Johnson's view. He

admits that only homogeneous magnitudes can be added. But multiplication is primarily repeated addition. It is therefore difficult to see that he can consistently hold that non-homogeneous magnitudes can literally be multiplied when they cannot literally be added.

The chapter contains a short, but most illuminating, discussion on the absolute and relative views of Space and Time. Mr. Johnson holds that two different controversies have been confused under this head. One is the question whether there are substantival entities of a peculiar kind (points and instants) between which spatial and temporal relations ultimately hold, or whether such relations hold directly between what would commonly be said to "occupy" points and instants. This might be called the *Substantival v. the Adjectival Theory* of Space and Time. Mr. Johnson inclines to the adjectival view, and dismisses points and instants as "substantival myths". The other question is whether position in space or time can only be defined in terms of relations. This is a question that could arise just as much on the substantival as on the adjectival view. I gather that Mr. Johnson inclines to the non-relational form of the adjectival theory. There is a third view, *viz.*, that points and instants are certain classes of events or objects. This has of course been greatly developed in recent times by Whitehead. I suppose we might say that this makes points and instants "adjectival" as well as "substantival myths". This view Mr. Johnson rejects with scorn, but I am not altogether persuaded by his arguments against it.

The rest of the book deals with all forms of Induction except the problematic kind. We have already seen the wide sense in which Mr. Johnson uses the term *Induction*, and have described Intuitive Induction. Chapter ix. treats of what he calls *Summary Induction*. This starts with the familiar "Perfect Induction," which, Mr. Johnson points out, can be reduced to syllogism. The remainder of the chapter deals with the establishment of Euclidean propositions by the use of figures. Purely analytical geometry proceeds wholly by functional deduction, but its axioms and therefore its conclusions are wholly hypothetical. In Euclidean geometry, according to Mr. Johnson, the axioms and propositions are asserted to be true of things in nature. We might have established enough axioms by summary induction from figures, and then have used nothing but functional deduction in our proofs. But this has not in fact been done; the explicit axioms of Euclid are not adequate to guarantee deductively all his conclusions, and that is why figures have to be used in geometrical proofs. At certain stages in the proofs summary inductions have to be made, and so a bad figure may lead to false conclusions. Mr. Johnson illustrates this last point very happily by a pleasing fallacious proof that all triangles are isosceles.

It remains to explain how Mr. Johnson supposes that summary induction establishes geometrical propositions from figures. The example that he gives is the establishment of the axiom that two

Euclidean straight lines cannot cut in more than one point. So far as I can understand, the process is supposed to be as follows: We image one fixed line AB and another cutting it at A. We then image this other line AX as continuously rotating about A. We see that in each of its positions it does not cut AB again, and we sum this up in the perfect induction that it never cuts it again. There are three points to notice: (*a*) Mr. Johnson holds that we succeed in imaging an actual infinity of positions. I should have thought it was just as impossible to image this as to sense it. (*b*) He insists that the process must be done by imaging, and not by perception, because "It is only through imagery that we can represent a line starting from a certain point and extending indefinitely in a certain direction" (p. 202). If Mr. Johnson can have indefinitely extended images he is more fortunate than I. (*c*) I understand Mr. Johnson to hold that the axioms of Euclidean geometry are supposed to be true of the physical objects in the external world. I should have thought it was extremely rash to extend the geometrical properties of our images to physical objects.

The last two chapters are devoted to what Mr. Johnson calls *Demonstrative Induction.* His treatment falls into two parts; (1) certain types of hypothetical syllogism in which an instantial premise leads to an universal conclusion, and (2) his substitute for Mill's Methods. The typical example of hypothetical argument which Mr. Johnson gives is of the form: "If some S is P then all T is U; but this S is P; therefore all T is U". It is thus an argument whose major is a hypothetical proposition with a particular antecedent and an universal consequent. The other premise is the assertion of a certain instance in accordance with the antecedent. The conclusion is of course the assertion of the universal consequent. Now no one would deny the validity of such arguments; the only question is whether they can be called inductive, even in the wide sense in which induction is defined by Mr. Johnson. In their most general form they hardly can be called inductive, for the conclusion is not a generalisation of the instantial minor. Mr. Johnson next quotes examples in which he alleges that the conclusion really is a generalisation of the instantial minor. One example is: "If some boy in the school sends up a good answer, then all the boys will have been well taught; the boy Smith has sent up a good answer; therefore all the boys have been well taught". I cannot myself see that the conclusion of this is a generalisation of the instantial minor. I should have thought that it was obvious that "All the boys have been well taught" could only be a generalisation of such an instantial proposition as "The boy Smith has been *well taught,*" whereas the actual minor is "The boy Smith has *sent up a good answer*". I therefore see no ground for counting even this argument as inductive. In fact the only argument of this type which would be genuinely inductive, in Mr. Johnson's sense, would be of the form: "If some boys in the house have measles, all will have measles; the boy Smith has measles;

therefore all the boys in the house will have measles". This is demonstrative and inductive, and not altogether remote from the real facts of life, as housemasters know to their cost.

Mr. Johnson points out that arguments of this kind really are common in science. From what we know of the atomic theory we can say with great probability that "If one sample of Argon has a certain atomic weight, then all samples of Argon will have the same atomic weight". We then find that the atomic weight of a certain particular specimen is 40. And we are justified in concluding that all specimens of Argon will have atomic weight 40, provided our major is correct.

I will end with an account of Mr. Johnson's substitute for Mill's Methods. He sees clearly that Mill was confused as to the nature of the methods. Really they should be purely demonstrative, leading to conclusions which are as certain as their premises. And their premises have to be borrowed from the results of problematic induction. Now Mill hardly distinguished the Method of Agreement from Induction by Simple Enumeration, which is a form of problematic induction. Again, he thought that the ultimate majors of these arguments were very wide general principles, like the Law of Causation. Mr. Johnson points out that they need much more definite and concrete majors before they can be rendered genuinely demonstrative. These majors have to be established by problematic induction, and they take the following form in the simplest case. Certain sets of generic characteristics ("determinables," as Mr. Johnson calls them) determine a certain other generic characteristic. Each determinable is susceptible of a number (finite or transfinite) of specific modifications. *E.g.*, "colour" is a determinable, and a certain definite shade of red is a determinate under it. And of course each determinate is capable of being exhibited in an infinite number of particular instances. With these preliminaries we can state the kind of major premise which will serve for a demonstrative induction. We need—if I understand Mr. Johnson rightly—in the simplest case, to establish a proposition of the following kind as a premise. (1) In all cases where all the determinables ABCD are present the determinable P is present; and no other determinable (say Q) is present in all these cases. (2) In all cases where the determinable P is present all the determinables ABCD will be found; and there will be no other determinable (say E) common to all these cases. When such a premise has been established the demonstrative induction rests on certain axioms about adjectival determination. Let us see how much freedom this premise allows us. If I interpret Mr. Johnson rightly it is quite possible (1) that we should have *abcdp* and *a'b'cdp*, for instance. (2) It is even possible that we should have *abcdp* and *a'bcdp*. But (3), if this be so, we cannot have *a"bcdp"*. In fact we may here conclude A*bcdp*, *i.e.*, that, although the *presence* of A in some form is necessary to the *production* of *p* yet its *variations* are irrelevant to the *variations* of *p*, so long as BCD

have the specific values *bcd*. (4) Even if we have A*bcdp*, we must not conclude that variations of A will be irrelevant to variations of *p* when BCD are not confined to the specific values *bcd*. We may perfectly well have *ab'cdp'* in spite of A*bcdp*. (5) Lastly, if we find that *abcdp* and *a'bcdp'*, then we cannot have *a"bcdp* or *a"bcdp'*; we must have *a"bcdp"*. *I.e.*, if *any* variation of A is relevant to variations of P, while BCD have the specific values *bcd*, *all* variations of A will entail variations of P under the same conditions. But (6), even if this be so, we must not conclude that, when the specific values of BCD are no longer confined to *bcd*, we cannot have such a case as *a"b'cdp*.

In all these arguments it is assumed that the determinables under discussion are "simplex," *i.e.*, that A, for example, is not really a complex of two or more determinables, say A_1A_2. It is also assumed that ABCD are all independently variable. Taking such a major as this, and supplying it with different sorts of minor from our observations, it is clear that we can arrive at four different types of conclusion, according to the nature of the factual minor supplied. (1) If all are simplex, and *abcdp* and *a'bcdp* then A*bcdp*. (2) If all are simplex, and *abcdp* and *a'bcdp'*, then *a"bcdp"*, where *p"* differs from both *p* and from *p'*. (3) If all be simplex, and *abcdp* and *a'bcdp'* then *a"cdp* must be *b"*, where *b"* differs from *b*. (4) If *abcdp* and *a'bcdp'* and *a"bcdp* then A cannot be simplex but must be of the form A_1A_2.

These four types of argument Mr. Johnson calls respectively the figures of *Agreement*, *Difference*, *Composition*, and *Resolution*. The reasons for the first two names are obvious. In the third, after a variation in A has produced a variation in P we find that a further variation in A does not produce the expected further variation in P. We therefore conclude that this variation in A has been *compounded* with and neutralised by a variation in some other factor such as B. In the fourth we have the same sort of facts to explain; but we know that there has been no variation in the other factors, whilst we are not sure that all the factors are simplex. We are therefore forced to *resolve* the factor about whose simplicity we were doubtful into two or more factors.

Mr. Johnson illustrates his Figures and then deals with the more complex and actual case of a determined result involving several determinables PQRS, say. The general principles involved are the same, and will be clear to anyone who has understood the argument in the simpler cases.

I think there can be no doubt whatever that Mr. Johnson's Figures are a great improvement on Mill's Methods, both in logical rigour and in approximation to the actual procedure of scientists. There is, however, one criticism which strikes me. Surely the axioms on which Mr. Johnson bases his Figures wholly ignore the possibility of the laws of adjectival determination sometimes taking a *periodic* form. Suppose it happened that P was so connected with ABCD that—

$$P = A \sin (BC + D).$$

Then we should have $p = a \sin (bc + d)$ and $p' = a \sin (b'c + d)$ and yet $p = a \sin (b''c + d)$, provided that b'' is and b' is not equal to $b + 2\pi n/c$. Nor is this an outrageous supposition, since electromagnetism mainly rests on laws of this kind.

I have perhaps said enough to show that Mr. Johnson's book is one which no one interested in Logic and Scientific Method can afford to neglect. It contains many controversial points, as any thorough treatment of such difficult subjects must do; but I have no hesitation in saying that it is the best book that has appeared, or is likely to appear for a long time, on the absolutely fundamental questions with which it deals.

C. D. Broad.

De l'Explication dans les Sciences. Par Émile Meyerson. Paris: Payot & Cie, 1921. 2 vols. Pp. xiv, 338 and 469. Price 40 fr.

I.

M. Meyerson here deals from a different point of view with the problem which he handled with so much distinction in *Identité et Réalité* (1st ed., 1908, 2nd ed., much enlarged, 1912: Paris, Felix Alcan). These two books deserve to be widely known in this country, both to philosophers and to scientists. M. Meyerson's style is a model of concreteness and lucidity; his argument is wonderfully continuous, in spite of the wealth of illustration drawn from the history of science with which he enforces it.

The problem is one of theory of knowledge: to discover "the essential principles of thought." The method is to examine the processes of scientific reasoning as actually exhibited in the history of science (ix.). His work is not metaphysics, but, he hopes, "prolegomena to any future metaphysics" (xii.).

In this examination he does not trust the scientist's own accounts of his processes, but studies the scientist at work, so as to see how he acts. M. Meyerson's study then can be described as a study of scientific reasoning from a behaviourist standpoint (*e.g.*, *Identité et Réalité*, 432-433).

In *Identité et Réalité* this investigation was pursued empirically. In the present book an attempt is made to justify the same results by a more deductive consideration of the conditions of scientific explanation as such.

II.

It is assumed throughout that man's reason is an instrument which has to be applied to the original data of experience (sensations) in order that a world may be experienced at all. This instrument, reason, has a structure, a form, which has remained without evolution at least during historic times, although there has been a steady evolution in the products of reasoning as applied to

the systematisation of experience. It is this constant form of human reason that M. Meyerson has endeavoured to bring to light (ii., 369 ff.).

One result follows at once, which helps to make the author's historical studies so valuable. If human reason in its essential form does not change, then all the scientific theories of the past are as reasonable as those of the present; and if we can think away later discoveries and new points of view and put ourselves at the old point of view, we shall see how reasonable that point of view was; and this is a duty enjoined on the historian. The importance of this cannot be too much stressed. M. Meyerson's favourite example is the history of the phlogiston theory; but the whole of his work bears the impress of it on every page.

III.

We can best bring out the author's attitude to his problem by noting his account of (*a*) atomism, and (*b*) theories of conservation (ii., 319 ff.).

(*a*) Atomism was the first scientific fruit of the sphere of Parmenides. It was fully matured, so far as its form is concerned, at its birth; and subsequent development has not altered its main lines. It has been throughout the ages, and continues to be to-day, the most powerful of all instruments in scientific discovery. It is peculiarly fitted to bring home to us the nature of human reason. While the one unchanging of Parmenides represents human reason taking possession of itself in its purity once for all (with absolute finality), atomism represents human reason straight away adopting its characteristic attitude to the world of existence. Atomism asserts persistence and admits change. It makes change quasi-rational by reducing it to variation of one type, and that the most akin to reason, *viz.*, change of position, or grouping, in space. "Il faut," says Cournot in a passage which M. Meyerson took as one of the mottoes of *Identité et Réalité*, "que les inventeurs de la doctrine atomistique soient tombés de prime abord, ou sur la clef même des phénomènes naturels, ou sur une conception qui la constitution de l'esprit humain lui suggère inévitablement." In a way they did both; but fundamentally—and it is on this that we wish to concentrate at the moment—the latter.

How far, then, it may be asked, does Atomism, which is *a priori* in that it received its complete outline at a time when experimental evidence for it was impossible, represent "une conception qui la constitution de l'esprit humain lui suggère inévitablement?"

Atomism contains aspects which do not satisfy reason, and which must therefore be regarded as foreign to the nature of reason. Atoms have definite shapes and sizes and positions in space. Why just these? reason must ask, but cannot answer. Atoms act on one another; and reason has never been able to comprehend transitive action. Atomism is rational, we see, only to the extent to

which it satisfies the demand of the mind for that which remains identical without changing; its irrationality is due to the fact that it involves a diversity which cannot be rationalised.

Here is one of M. Meyerson's essential points. The only genuinely rational would be the purely identical which contained no diversity. But such a pure identity could not exist; it would be a strict non-entity (see ii., 335, n. 5, for a note on identity). Thus reason *as applied to existence* is self-contradictory, since it postulates a diversity which it cannot fully assimilate. Hence in seeking to render existence completely rational, we are started on a path which would end in the complete destruction of existence—in acosmism. Yet, and this is the paradox of the situation, it is just the strenuous endeavour to accomplish this task which has provided the most fruitful results in the discovery of the laws of nature.

Atomism, as we see, shows reason coming to terms with that which is apparently only partially rational. It takes various shapes at various epochs, but the same general character underlies it always. It leaves sensation aside as an irrational which it makes no attempt to subdue. The history of the evolution of atomism is a history of attempts to bring more and more of the diversity of nature inside the atomic frame, of partial success beyond all hopes, and of a sudden emergence, from time to time, in an unexpected place, of a new brute diversity which resists reduction. The Brussels conference of physicists of 1911 furnishes M. Meyerson with many reflections on this matter (i., 39 ff., and *passim*). Viewed from another side, the history of atomism shows a series of attempts to reduce the multiplicity demanded by the form of atomism itself, to determinations of pure space: always with the same partial success and lack of success.

(*b*) Theories of conservation. At various times various principles of conservation have been held in science: some have proved erroneous, and some have up to the present been confirmed. All have the same character. They are partly *a priori*, partly *a posteriori*. From reason comes the demand for something which persists; from experience comes the suggestion for what it is that persists. M. Meyerson is extremely happy in his treatment of these principles; particularly in showing the rationality of the qualitative conceptions of the middle ages, of the theory of phlogiston, of caloric. Principles of conservation, he shows, are *plausible*, *i.e.* we are disposed to accept them on insufficient evidence because of their promise to satisfy reason. Reason wants something to persist, and every principle of conservation has been accepted because it both satisfied reason in this respect and showed itself capable of practical application. He is extremely happy in the way in which he shows how, once such a principle has won acceptance, it leads scientists to see as a fact the entity which persists, and thus a barrier of fact is erected against a new principle of conservation. Each new principle thus has to fight strenuously before it slays

its rival, but, once its rival is slain, it alters all the empirical facts in its own favour. M. Meyerson's account, again, of the way in which this principle is used implicitly in the building up, on the level of common sense, of a world of independent objects, enables him to reach one of his central theses, *viz.*, that the world of common sense is a half-way house on the same road to acosmism as that on which science is travelling.

IV.

The history of science, then, reveals a progressive attempt on the part of the scientist to show nature rational, and an ever renewed failure to do so. The existence of science proves that nature is partly in accord with reason; the existence of the irrationals (the irreducible characteristics which have either to be accepted as brute facts in the science or set aside as falling beyond the power of the science to include even as brute facts) which arise in every science indicates that this accord is only partial; the unexpectedness of the irrationals is a warning that we cannot map out beforehand the extent to which nature is rational.

The whole history of science for M. Meyerson is summed up at the beginning of its course in Plato's words (which he takes as the motto of *De l'Explication*): "accommodating by violence the nature of the other to that of the same" (ii., 315 n.). The scientist refuses what nature offers, and lays violent hands on her, forcing her diversity into identities; and nature shows herself pliable—but you never know when she will resist.

A very important example of this is to be seen in the concepts the scientist uses such as pure silver, a perfect gas, a weightless lever, a body moving under no external forces, etc. These things none of them exist; nor does nature suggest them of herself; but they are the basis of our whole treatment of nature.

"Mais alors n'est-ce pas là, de la part de la science," he asks, "une attitude contradictoire, n'est-il pas étrange qu'elle étudie le phénomène, qui n'est que changement, à l'aide d'un principe qui tend à affirmer l'identité de l'antécédent et du conséquent, c'est-à-dire à nier tout changement, et qu'elle se serve, en général, afin de pénétrer l'essence des choses, dont elle maintient la réalité, d'une conception qui aboutit à la négation de toute diversité? N'est il pas paradoxal au plus haut point qu'elle réussisse dans cette entreprise, que la nature, dans une certaine mesure, semble se montrer pénétrable, plastique, à l'égard d'une théorie qui vise à la démontrer non-existante?" (ii. 349).

Nevertheless, it is so.

V.

Two concepts are needed to express the full complex task of science; M. Meyerson calls them respectively the concept of law, and the concept of cause. He uses the word cause in the sense

in which it was used before Hume identified it with invariable sequence; and he keeps the word law for the notion of invariable sequence, or orderliness. Cause, then, for him, emphasises the element of identity ("causa aequat effectum: ex nihilo nihil fit"); while law emphasises the element of diversity, an emphasis which reaches its height in the principle of Carnot. Each principle is unworkable if separated from the other; this M. Meyerson brings out both by the whole argument of *Identité et Réalité*. and by his trenchant criticism of positivism in *De l'Explication*. Yet he is not satisfied that it is possible to reduce either principle to the other. However intimately bound up together, the two principles, he insists, are really antagonistic. Causality in its ideal form (of absolute identity) is an ideal infinitely remote, and suicidal; while we hopefully assert the complete orderliness of nature here and now (with the exception of a large field which he leaves open for volition) (ii., 336-337: *cf. Identité et Réalité*, 428).

VI.

The direct logical approach to this position is made in the chapters of Book II., notably in chapters iii. and v., which deal with deduction. Book III., which discusses the nature philosophies of Schelling and Hegel (*L'Explication Globale*), forms an important indirect logical approach.

The nature philosophies of Schelling and Hegel, M. Meyerson thinks, are capable, in their contrast, of throwing clear light on the genuine nature of scientific explanation; and he endeavours to put them to this useful purpose. Hegel's description of the method of abstract science, he considers, is "just and profound"; it has been neglected by scientists because Hegel's object in describing science was to show how defective science is. Hegel, and M. Meyerson agrees, insists that explanation in the physical sciences rests on the concept of persistence, or the identical. The whole work of science appeared to him to reduce to an immense tautology, for he did not see the extent to which the concept of spatial arrangement of identical elements could be used in scientific explanation. In pure mathematics, M. Meyerson thinks, Hegel was willing to admit the value of the tautology; but just because mathematics proceeds by a setting aside of diversity, Hegel regarded it as incapable of serving as a type of genuine knowledge.

The precise sense in which mathematics treats entities as identical which it knows not to be so, setting aside temporarily all diversity which stands in the way of their complete identification, M. Meyerson treats in chapter v. His account is based on the fact that what exists shows itself individual and in every detail singular. Two things can be similar in a certain respect but not identical; if the universals which form the staple of reasoning are to arise, reason must force similars into an identity which they really do not show. It is clear that M. Meyerson is concerned only to pre-

cise a situation and not to propound a final theory of the relation of universal to particular; but at the same time he does definitely speak as if there could be, in his opinion, no ultimate way of harmonising similars and identities. Yet (as we have seen) it is one of his final conclusions that nature is partly rational, and by this he certainly does not mean that some parts of nature are wholly rational. What *ultimate* meaning, then, can be given to the phrase "partly rational," if the rational is the pure identical and all diversity is irrational?

We can say, I think, that M. Meyerson's account of reason involves that *in principle*, nature is in every part completely irrational. For the only truly rational would be a pure identity which was not given to reason, but was provided by reason out of itself. The first approximation to the truly rational is a number of entities, such as the A_1 and A_2 which form the real basis of the principle of identity "A is A": where what we do is to affirm that "A_1 is A_2," neglecting as irrelevant the difference indicated by the suffixes. We have here an instance of what M. Meyerson would call "partial" rationality; but it is clear that on his view of identity such partial rationality is, strictly speaking, completely irrational. We have identification but not identity in the proposition A_1 is A_2.

The identification may rest, in this case, on the basis of an obvious similarity (or an inability on our part to distinguish precise differences), as when we identify two animals as sheep: it is then spontaneous. It may however involve force, and have to be sought for: as where steam and ice are declared to be identical in substance. What we see presents difference and not sameness: what we require if we are to comprehend is identity: we compromise with "identi-fication". But in principle, as I have said, this identification is absolutely irrational. Nature can however be described as "partly rational" in the sense that it is amenable, within limits, to treatment by this process of identification (see ii., 139 ff.)

VII.

I think M. Meyerson has fully made out his case that the successes of science have been won by a constant endeavour to force nature into certain moulds. I think he has shown that reason must play an active forceful rôle, making demands which continually go beyond anything nature suggests and beyond anything which nature ever fully satisfies. But I think his identification of the purely rational with the purely identical is too forceful. To take one instance. The two sides of the formula "existentia est singularium; scientia est de universalibus" (i., 14-15), do not come, one from sense, the other from reason. It is not enough to say (as he does, quoting from M. Roustan's excellent *Psychologie*) that "tout ce qui est *perçu* par nos sens se morcelle en sensations particulières," while "tout ce qui est *conçu* par notre entendement prend la forme d'idée générale" (i., 15). The conflict between

"singularia" and "universalia" is not one between reality and science, sensation and understanding. It is one within reason itself. Both sides of the formula come equally from reason: and both sides come only from reason in contact with the material of perception. To describe science as pursuing identity in what is merely presented as diverse is to describe it only from one side: science equally pursues the completely definite, the singular, in what is merely presented as diverse. It is reason that insists that atoms, if they exist, must have a definite shape; just as much as it is reason that insists that there must be a reason why they should have this rather than that shape. Indeed, if you are to describe as rational all the ideals which science pursues, all the demands which reason makes of what is presented to it, you must take the rational as, *in toto*, a heap of contradictions. Reason demands equally the identical, the singular, the continuous, the discrete, the independent, the interrelated, etc. (see ii., 373, for M. Meyerson's point). My own view is that the explicit formulation of each of these demands, and the separate following of it to its end with the rigour of "a relentless logic," endeavouring to use it as the guiding thread through the labyrinth of reality, is an essential step in the process of refining the instruments which reason uses in its attempt to discover truth, but not a final step in the account of the nature of reason itself. What exists (nature) is presented as a tangle wherein reason demands "fibres" (i., 101; ii., 276, 285), because it is the nature of reason to demand fibres. But reason's own "fibres" are tangled and are disentangled by itself only one by one; and the process of disentangling them is a process of dissection performed by first dimly discerning a fibre in reason itself, and then endeavouring to see the whole of nature as built up entirely on the basis of this fibre. All this however is only dissection: reason is not a mere sum of fibres but a whole in which the fibres are inter-related and in which they modify one another.

Again, while I should say that the explicit account of the nature of reason as disentangled at any date is to be found in the Logic of that date, I should not agree that any logic could be final until complete knowledge of the Universe was reached. Man's reason, M. Meyerson says, is completely rational (ii., 307); but if that were true, there ought to be something, at least in the realm of concepts, which actually did, here and now, completely satisfy that part of man's nature which M. Meyerson calls his reason. But in fact there is nothing of this kind. What there is, is something which it is felt *would* satisfy a part of man's nature *if* man could completely comprehend existence by its help. The contemplation of pure identity does not bring satisfaction; pure identity is rather a demand which brings dissatisfaction with what existence presents, an ideal which *would* satisfy if it could be realised in existence. Complete rationality, I feel, is rather an ideal to be attained in the far away future; and an ideal which describes what not a part, but the whole of man's nature, is striving towards. The process of

attaining it demands that man should formulate with all rigour what he has so far attained of it, and endeavour to follow out its consequences relentlessly in thought and cautiously in action. For life demands to be allowed more freedom; and the conflict resulting is equally a part of the process.

To M. Meyerson's argument that reason has not changed we can apply his own method. His own investigation into the rational processes followed by science was compelled to postulate that those processes be regarded as identical with those of the present day, because otherwise he would have no key to the understanding of them; but he was equally compelled, in his investigation, to have recourse to the notion that much was only implicit in the processes as manifested in the infancy of science, which became explicit later on. Following his own method, we shall see there a confession of the partial insuccess of the postulate on the basis of which the whole investigation proceeded; but we shall recognise that this was inevitable, and that the investigation could take no other course, in its initial stage. But M. Meyerson has done his work so well that even those who differ from him in his view of what is completely rational will have little to change in his description of scientific processes.

We have left no space to deal with the profound discussion of the relation between science and philosophy in Book IV., and our mention of Book III. has been all too scant; but there is so much in M. Meyerson's volumes that we cannot hope to do justice in a few pages even to his main topics. As before in *Identité et Réalité*, there is a rich gleaning in the Appendices.

LEONARD RUSSELL.

VII.—NEW BOOKS.

The Greek Tradition from the Death of Socrates to the Council of Chalcedon, Vol. i. *The Religion of Plato.* By Paul Elmer More. Princeton University Press; London, Humphrey Milford, 1921. Pp. xii, 352.

The first duty of a reviewer must be to thank Mr. More for having given us so fascinating a first volume, and to express the hope that he may be able to complete the task he has set before him in a reasonable time. For the present reviewer, the second duty must be to express his hearty sympathy with Mr. More's general purpose as laid down in his *Preface*. The points on which the *Preface* lays stress are these: There is a continuous tradition of the spiritual life, presumably derived from Socrates, of which Plato's writings are the truest expression; this tradition dominates Greek thought, though, as Mr. More holds, it has been dangerously perverted in its later forms; from Greek philosophy it passes into the Greek fathers. In fact, the Christian Church, rather than the Neo-Platonists, is the legitimate heir of Plato, and there is thus a single uniform development from Socrates, or at any rate from the earliest work of Plato, to the completion of the formulation of the Christian faith at Chalcedon. The great truth which finds its expression in this development is that the human spirit itself is "dual," an inhabitant of the eternal and the temporal realms at once, and that all worthy living is based on the principle of subordinating the merely temporal in a man's self (the "flesh," as St. Paul calls it), to the eternal (the "spirit"). It is just this great conviction which our world to-day seems in danger of losing, and therefore, for the sake of the world's salvation, it is imperative to bid thoughtful men return to the literature in which the Greek and Christian truth is most plainly and emphatically preached, from the *Phaedo* down to Gregory of Nyssa and Chrysostom.

In all these fundamental points the writer of the present notes feels himself wholly at one with Mr. More. There are matters in which he cannot see altogether eye to eye with his author, but in his own opinion these, important as some of them are to a complete estimate of Plato's philosophy, are secondary in a study of Plato's religion and rule of life, and, in some cases, may be reduced after all to mere questions of the emphasis to be laid on a particular strain in the Platonic dialogues. The rest of this notice will necessarily be largely taken up with the raising of doubts about these points of difference, but I should like to make it clear beyond all question that I fully sympathise with Mr. More's central position and that I am keenly alive to the real beauty and literary charm of the style in which he presents it. I am the more anxious to do this that, rightly or wrongly, I found much to disagree with in Mr. More's preliminary work *Platonism* and its presentment of Socrates.

Now to say something on the matters where, rightly or wrongly, I find it difficult to agree with Mr. More, and would respectfully suggest to him that he might perhaps reconsider his utterances. The most important of these is his insistence upon regarding the Platonic philosophy, as well as

the Platonic religion, as "dualistic". As to the point from which Mr. More takes his departure, he is, indeed, clearly in the right. If Plato and Christianity are to be believed, there is a fundamental duality in the human soul; every soul of man is a denizen of two worlds at once, and "salvation" means definitely rising from the pursuit of the ephemeral to the pursuit of the eternal. And I further agree that most contemporary ethics and a great deal of contemporary speculative philosophy are vapid and mischievous precisely because they will not recognise this division of the soul against itself. But it is another question whether this duality in unity which we find in ourselves justifies an ultimate "dualism" in philosophy. For the unity of the person in whom the duality is found is precisely what makes the tragic element in the soul's life. I think Mr. More has been led into exaggeration on the point by a bias against the cheap "monisms" of the Spinozistic type or the type of an Hegelianism interpreted in a Spinozistic sense. For my own part, I fully agree with him that this sort of monism is the worst and most superficial of philosophies, and am wholly on his side in his vigorous protests against the interpretations which read "immanentism" and "pantheism" into Plato. But I do not see that there is warrant for ascribing to Plato a dualism which seriously sets up *two* cosmic principles. Still less do I think Plato would have agreed with Mr. More's "irrationalism" and distrust of logic. I venture to believe that Plato would have said that the cure for the kind of rationalism which shuts its eyes to all the facts that will not fit into its preconceived schemes is not less of hard logical thinking, but more of it. Indeed, this seems to be the real point of the *Parmenides*, where the youthful Socrates is warned that his helplessness in the face of criticism is due to lack of the indispensable *γυμνασία* in just this so-called "useless" dialectic. I do not think Plato shows any signs of the impatience Mr. More feels with what he himself calls "metaphysic" and describes as the attempt to rationalise the ultimate how and why of things. Plato is, to be sure, quite alive to the impossibility of achieving finality in such an attempt, but I am sure that he holds that we ought to do the best we can, because there really is an intelligible "ultimate how and why," even if our mortal eyes are holden so that we cannot see it.

I should like to suggest that this bias against "metaphysic" makes Mr. More unconsciously unfair to Neo-Platonism. When he complains of the mischief done by Aristotle (the least religious of great Greek philosophers), in narrowing down "imitation of God" to the "speculative life," I wholly sympathise, and I am moved to admiration by his fine pages at the end of the book on Plato's insistence on "service," where he says much which I have always tried to urge upon pupils in the course of many years' teaching. But the hard verdicts passed, for example, on Plotinus seem to me to indicate insufficient, or at least insufficiently sympathetic, study. Two passages are particularly singled out for reprobation, the famous words at the end of *Ennead VI.* about the flight of the "alone to the Alone," and the other about the shedding of memories of earth by the "risen" soul. I doubt if they will bear all the meaning which is put upon them. As for the "flight," there does not seem to me any evidence that Plotinus is preaching the shallow doctrine of the "absorption" of our personality into an impersonal absolute, which I should repudiate as vehemently as Mr. More does. I take him to be actually describing a fact of experience of which most of us have some knowledge, and I do not really believe that he goes beyond what Mr. More has said quite beautifully himself about the combination of detachment and attachment. And it seems clear to me, after an attentive and prolonged study of the leading Neo-Platonists, that their actual belief was quite definitely opposed to anything like "absorption". Union with the "One" is not "absorption"

into it; the plurality of individual immortal souls seems to me just as indispensable to the Neo-Platonist scheme as the dependence of all things on the "One". And as to the other passage, if it is read sympathetically, does it not appear as a justified protest against the triviality of spiritualistic "messages from the other world," a triviality equally obnoxious to Mr. More himself? I suggest that Mr. More exaggerates the differences between Plotinus and Plato by not allowing enough for the differences in their times. After all Plotinus led the life not of a cloistered quietist but of a man pretty fully occupied in the only business open to him, and he seems to have been fairly shrewd and successful even in the matter of looking after the investments of his friends. When the so-called "inactivity" of philosophers in the third century is censured, it is usually forgotten that their activity, when they got their chance, a century later, under Julian, is commonly equally censured by the very same critics.

I dwell on the point partly because I should like to suggest that Mr. More should modify his admiration for Plutarch as a guide to Plato's meaning. I think, if this were the proper place, I could show that Plutarch has definitely led him astray about the meaning of the *Timaeus*, but I do not dwell on the matter, as it, after all, concerns Plato's science and not his religion. From Plutarch himself we learn a good deal about the way in which the *Timaeus* was understood by Plato's own immediate pupil Xenocrates, and by Crantor in the next generation, and Plotinus, I should say, stands much more in the line of direct development from these first Platonists than Plutarch does.

I may mention, as a set-off to these doubts, a number of secondary points where I am delighted to find Mr. More vigorously championing what seems to myself the only true interpretation. I am glad that he will have no truck with the attempts to whittle down Plato's express ascription of personality to God and of immortality to the individual human soul. I am sure he is right again in refusing to confound Plato's God, who is a perfectly good *soul*, with the system of εἴδη, and I quite agree with him that in Plato's treatment the εἴδη are, in a sense, "above" God. (I am not equally satisfied that this doctrine is one in which we can finally acquiesce. Orthodox Christianity takes a different view and one which seems to me truer. At any rate, I am sure Mr. More is not right when he argues that, as a consequence of not putting the εἴδη above God, orthodoxy has come to regard moral distinctions as arbitrarily established by God, things of "mere will," to use Cudworth's language. I am sure that this is not and never has been the general sense of the Christian Church; still less is it a dogma of the Faith.) Again, I am delighted to see that, with all his deference to Plutarch, Mr. More will have nothing to do with an "evil world-soul". (Yet I wish he had not read astrology into the famous passage of the *Laws*. A careful study shows, I think, that when Plato insists on the existence of bad souls he is thinking simply of the undeniable fact that there are bad men. He goes on at once to ask whether the soul which "manages" the world is good or bad, and answers that it is good. Hence I do not believe that he means for a moment to entertain the notion that there is real disorder, caused by "malign" souls anywhere in the "heavens". I think Mr. More might, at least, reconsider his own interpretation.) On the other side, I feel sure—I am obliged for reasons of space to put my conclusions more dogmatically than I could wish—that it is a mistake to interpret the ἀνάγκη and χώρα of the *Timaeus* as symbols for the "dark," "unreasonable" element in our souls. The *Timaeus* is concerned with science as well as with religion, and what is said about χώρα and ἀνάγκη is a contribution to physics. Aristotle was quite aware of this, and has warned us that the doctrine of χώρα in the *Timaeus* is an analysis not fully agreeing with that given by Plato himself

in the Academy. This Platonic analysis, described by Aristotle, is on the face of it a piece of geometrical physics, not a contribution to religion. As for *ἀνάγκη* in the *Timaeus*, it demands a very careful study, and cannot be approached better than from consideration of Proclus's discussion of the meaning of *ἀνάγκη* in his commentary on the *Republic*. I will only remark here that the *ἀνάγκη* of the *Timaeus* cannot well be "chance," since its special function is to be the "under-strapper" (*ὑπηρέτης*) of intelligence. But the true interpretation of the *Timaeus* is a topic which could only be treated successfully in an elaborate clause-by-clause commentary.

One naturally awaits Mr. More's further volumes with some impatience. There is one dark saying which I hope they will make clear. I do not see that the dogmatic definition of the *persona* Christi really has anything to do with the "dualism" in the human soul. The problem decided at Chalcedon did not concern the human soul of our Lord at all. It had to do with the co-existence in one person of a *complete* humanity and complete Deity. But, no doubt, Mr. More will make the connexion of thought more apparent in due time, though I confess that at present I find it obscure.

A. E. Taylor.

An Introduction to Philosophy. By Wilhelm Windelband. Translated by Joseph McCabe. London: Fisher Unwin, 1921. Pp. 365.

Speaking of previous 'Introductions' to philosophy Windelband says that "by far the most scientific and instructive work" is that of Külpe, and it would perhaps not be unfair to describe the present work as similar in character to Külpe's though written on a more ample scale and therefore in a fuller and less severe style. A brief outline of the scheme and contents of the book will show how far the comparison is justified.

The task of philosophy, according to Windelband, is to subject the working assumptions which are made in practical life and in the special sciences to a critical examination. The aim of an 'Introduction to Philosophy' accordingly is to show how in the course of such an investigation certain fundamental problems inevitably present themselves and what are the main lines along which a solution of these problems has been sought. The fundamental problems of philosophy are divided into the two main classes of Theoretical problems, on the one hand, and Practical or rather Axiological (problems of value), on the other. But we are warned that this division cannot be rigidly maintained, and Windelband is inclined in fact to lay great stress on the part which ideas of value play in philosophy. "Metaphysics is the hypostatisation of ideals" (p. 40).

After a preliminary section on the distinction between reality and appearance—the distinction which necessarily provokes philosophical reflexion—the theoretical problems are divided into three groups: ontic, genetic, and noetic. The 'Ontic' problems are discussed under the three heads of Substance, Quantity of Being, and Qualitative Determinations of Reality. The section[1] on Substance first deals with the notion of thing or substance generally, then contrasts the tendencies to seek true substance alternatively in the universal or in the individual, and lastly considers the difficulties of conceiving the essential unity of the substance in relation to its diverse properties or states. The section on Quantity discusses first the opposition between systems of Monism or Singularism

[1] In an English book the sections would rather be chapters. The section on Substance, *e.g.*, runs to 25 pp.

and systems of Pluralism, and second the problems connected with the contrast of Finite and Infinite as regards space, time, and existence generally. The section on Quality discusses the distinction between primary and secondary qualities, the reference to mind involved in the distinction, the nature of mind, and then the fundamental opposition between mind and matter, together with the philosophical systems—Spiritualism, Materialism and Dualism—whose character depends on their treatment of this opposition.

The chapter on Genetic problems deals in the first section with succession in time generally, in the second with problems of causality, in the third with the opposition between mechanism and teleology, and in the fourth with the relation of body and mind.

The chapter on Noetic problems may be described as a short general account of theories of knowledge in connexion with such topics as the criterion of truth, the origin and validity of knowledge, and the types of science. In a section on 'The Object of Knowledge' Windelband seems to permit himself a more direct statement of his own views than he does as a rule elsewhere.

Part II. is devoted to the Axiological problems, and, after an introductory section on the psychological and normative aspects of valuation in general, deals in successive chapters with Ethical, Æsthetic, and Religious problems. The scheme of the first chapter is indicated in the following quotation. "The subject of moral conduct is partly the individual, partly the social community, and partly the species in its historical evolution. Hence we get the three sections of practical philosophy which we may distinguish as morality, social science, and the philosophy of history" (p. 219). The first section accordingly deals with ethical problems in the narrower sense of the term, and considers successively the content, the knowledge or psychological source, the sanction, and the motive, of morality. Under the first head a brief criticism of types of ethical theory is given, and the section concludes with a few pages on the freedom of the will. The second section deals with the relation of the individual will to the General Will of the community, the various types of community such as the family, the State, and the Church, the problem of their function or value, and finally with the philosophy of law and of the State. The third section deals with personality as the vital factor in history—"what constitutes the power of the significant personality is that it develops superpersonal values in itself and externalises them" (p. 287)—with the idea of humanity, the nature of historical progress, and the ultimate or metaphysical significance of history.

The chapter on 'Æsthetic Problems' has three sections entitled respectively 'The Concept of the Æsthetic,' 'The Beautiful' and 'Art,' but the whole chapter covers only some twenty pages and may be passed over without further remark. The concluding chapter on 'Religious Problems' is also somewhat meagre and disappointing, especially when we consider that it is in the sphere of religion that we meet our final question as to the relation of the axiological to the theoretical problems. The first section deals with the distinctive character of religion in general and maintains that religion has no special province of values such as science, art, and morality have. "It consists in the metaphysical tincture and relation which all these values may assume. Religion would be deprived of its universal significance if the sacred were marked off from the other cultural provinces as a special section of the life of values" (p. 328). The second section, entitled 'The Truth of Religion,' gives a brief account of the arguments for immortality and the existence of God. The final section on 'Reality and Value' insists on the dualism of 'ought' and 'is,' of value and reality, as one which we cannot rise above. "The fact

of valuation necessarily implies a dualism of the valuable and valueless in reality. This subtle truth, which is easily overlooked, may be traced in the meaning of the two attitudes which we find opposing each other under the names of optimism and pessimism" (p. 352). But the dualism out of which these opposed doctrines spring is one which we cannot resolve. "From the very nature of the case this final problem is insoluble. It is the sacred mystery, marking the limits of our nature and our knowledge. We must be content to remain there and to recognise that here, at this inmost point of life, our knowledge and understanding can reach no further than the other side of our being, the will. For the will the duality of value [and] reality is the indispensable condition of its activity. If value and reality were identical, there would be no will and no event. All would remain motionless in a state of eternal completion. The innermost meaning of time is the inalienable difference between what is and what ought to be; and because this difference, which reveals itself in our will, constitutes the fundamental condition of human life, our knowledge can never get beyond it to a comprehension of its origin" (pp. 358-359).

Windelband claims in the Preface that his work is not an introduction to a particular philosophical system but "makes a very wide survey of all the possibilities in the way of solutions". While granting that "naturally, it is based upon the author's personal view," he tells us that "this will not be pressed, or suffered to influence the author's judgment in appraising other systems of thought". And on the whole his claim is justified, for he is usually careful to state as fairly and objectively as he can the arguments and difficulties on both sides of any controverted question. But he seems sometimes to be unaware that he is making large assumptions and taking propositions as self-evident that are far from being so. One or two examples will suffice. "The more a personality can be described or defined, the less is its individuality and originality" (p. 64). "The successive acts of consciousness, of which the individual experience consists, are discrete or discontinuous elements" (p. 123). "The self-knowledge of the soul is . . . the only knowledge in which we can be convinced beyond doubt of the likeness between knowledge and its object" (p. 193). In one set of utterances the author displays a curiously superficial cynicism. "The morality of enlightened interest . . . is the morality of actual life: the theory that the great majority of men have held in all ages and will continue to hold" (p. 228). "We may be confident that what seems to be morality in the case of the great majority of men is no more than legality based on fear and hope with respect to various authorities" (p. 245). "Personality again has various degrees. The great majority, who seem to be there merely for the propagation of the race, have only a potential personality" (p. 281).

To estimate the value of the book accurately is not easy. As the work of a prominent historian of philosophy it is of course written out of a full knowledge and contains plenty good and interesting matter. But for one thing it is not clear for what class of readers the book is really designed. It is not well adapted either to the needs of the student who is just beginning his study of philosophy or again to those of the merely general reader, inasmuch as it tends to assume too much previous knowledge. What, for instance, are such readers likely to make of a passage like the following? "[Kant] found that theoretical reason threatened to call into question, not only the knowableness, but even the thinkableness —that is to say, the metaphysical reality—of the suprasensible, or at least to make it entirely problematical; then his practical reason 'realises' the suprasensible, and inspires a conviction of the higher world of ethical-religious metaphysics lurking behind the appearances" (p. 41). To the

more advanced student the value of the book is naturally lessened by the almost inevitable circumstances that the ground covered is often very familiar and the treatment, in spite of the fairly large scale of the book, summary and unsatisfying. On the other hand he will no doubt find many interesting and suggestive surveys of the topics of philosophical controversy. It is a drawback, however, from this point of view that no detailed references to the literature are given which would enable the student to follow up a subject for himself. Probably the book would be of most use to the student or general reader who had obtained some knowledge of the history of philosophy and wanted to take stock of the results. But I question whether even for this purpose the plan followed in the book is a good one.

It is no doubt a very difficult thing to write a good Introduction to philosophy, and the difficulties are to a large extent inherent in the nature of the case. But I do not think that Windelband's plan meets them in the best way. In the second part of the book, where he is dealing with the Ethical, Æsthetic, and Religious problems, he is simply traversing in a rapid, and necessarily partial, way the ground of certain special subjects. Of the three chapters the best is that on Ethical problems, but the student would probably always be better served by going to the special treatises devoted to the respective subjects. In the first part of the book the chapters on the Genetic and Noetic problems are the most interesting and profitable to read, because the sections have some definite sequence and deal with a connected series of problems. The chapter on 'Ontic' problems, on the other hand, with its three sections on Substance, Quantity, and Quality, seems to me to adopt a radically bad method, which leads to artificial separations and conjunctions, and prevents the reader from gaining any broad view of the types of metaphysical theory which have played a leading part in the history of philosophy. The author splits up problems in Külpe's fashion and with even more unfortunate results. Thus under the head of Substance we have an opposition between Universalism and Individualism, and under the head of Quantity very much the same opposition with the new designation of Monism or Singularism versus Pluralism. But Dualism, Spiritualism, and Materialism are discussed in the section on Qualitative Determinations of Reality. We have only to take a philosophy like that of Leibniz to see how misleading all this is. To put his Spiritualism and Pluralism and Individualism under separate heads as answers to separate problems is simply to destroy the systematic connexion which is the essence of a philosophy—surely a poor way of introducing the reader to "the science of philosophising". Whatever its merits in detail, the chapter as a whole can hardly be otherwise than puzzling and confusing to the ordinary student or general reader, and unfortunately it is in one way the most important chapter in the book, dealing as it does with the fundamental types of ontological theory.

Not having the German original for comparison, I cannot speak with confidence as to the merits of the translation. It seems as a rule to read well enough, at least to serve its purpose. On the other hand, not to speak of mere slips, it makes mistakes which are obvious even in the English version. The following are some examples from the early sections. The English word 'antinomianism' has no such connexion with philosophical antinomies as the German original doubtless has. In a passage that refers to Leibniz's monadology we are told that "the universe is unity in plurality in the sense that each of its parts is equal to the whole and therefore to all the others" (p. 85). The original must surely speak of resemblance or correspondence here, not of equality. In the statement that "the unity of mass is in all cases arbitrary and

conventional" (p. 88) one suspects that "unity of mass" should be "unit of measurement".

The German original was apparently published in 1914, but owing to the war it is probably little known here, and the English version will therefore be specially useful.

H. Barker.

A History of Psychology. By George Sidney Brett. London: Allen & Unwin, Ltd. New York: The Macmillan Company, 1921. Vol. II., Mediæval and Early Modern Period. Pp. 394. Vol. III., Modern Period. Pp. 322.

These two volumes complete a history of which the first volume, *History of Psychology: Ancient and Patristic*, was published as far back as 1912; Prof. Brett is to be congratulated on the result. The history of psychology is an exceptionally difficult theme to handle. Psychology is not yet a branch of science, and it is no longer a branch of philosophy. It is still engaged in working out its own salvation. In discussions, even of the most purely "experimental" data, there are constant references to names and theories of earlier psychologists, and there has been great need for a handbook giving a sketch of the more important writers on psychology,—their works, their attitude on the fundamental questions, and their contributions to the progress of the subject. This need the present work supplies; but it does much more than that. With all its scholarship and its science, there is a vein of enthusiasm and romance running through the work, and we agree with Prof. Brett that it is "worth while to contemplate the spectacle of a quest which has called forth from the beginning of time the most passionate desires, the most distorted theories, the most bitter disputes, and the most refined thought possible to the human being". If this were the history of a science, it would be the chronicle of discoveries of fact, of the forming of theories and their gradual replacement by others, as experiment or practical application showed their errors. But there are few *facts* of mind to record, and the theories are presented here as successive variations upon a comparatively small number of themes. In other words what we have is the history of a part of philosophy, and of the gradual, as yet incomplete, detachment of the part from the whole, and its struggle for independence. Questions of "presuppositions," methods of inquiry, and methods of interpretation, bulk far more largely than those of facts, of laws, or of practical applications.

Mr. Brett's general plan for the work is to give for each period first the state of the sciences which influenced psychology, then the state of psychology itself during that period, then the influence of psychology upon other sciences, and its general applications. But it is only occasionally (*e.g.*, in Part III. of Vol. II.) that he is able to carry out this scheme; mostly the order of time dominates, but occasionally a separate topic is worked out by itself, and the geographical order also intervenes. In the second volume, the divisions are—Part I., The Background of Mediæval Thought (Theology, Scholarship, Tradition); Part II., Mediæval Doctrines (the Beginnings of Mediæval Psychology in the ninth, and up to the end of the sixteenth century); Part III., From the Sixteenth to the Eighteenth Century; and Part IV., The Eighteenth Century.

As we approach modern times, the space given to each century increases. The nineteenth century has the third volume to itself; Part I., The Age of Transition (Scottish School, Fries, Herbart, Beneke, Schopenhauer, etc.), Part II., Modern Psychology—"General Scientific Tendencies,"

"From Fechner to Wundt," "Representative Types of Theory," "British Psychology in the Nineteenth Century," "The Progress of Psychology," and "The Scope of Modern Psychology," being the titles of the successive chapters.

The style has a distinction, and clearness, with frequent flashes of humour, which make the volumes easy to read, in spite of the unavoidable tediousness of some of the topics. Of a certain French treatise on the faculties of the soul we are told that it "reached a second edition in 1865, and was henceforth regarded as the catechism of this school [Jouffroy's] and its most complete condemnation" III., p. 24: of Mansel, that "his defects were not personal, they were the excellences of his generation" *ibid.*, p. 28. The only defect, if it is one, is the constant tracing of views and theories back to Aristotle, Plato or Plotinus. A theory is not explained when it is said to be Aristotle over again; similarly, there is perhaps too much said of "anticipations" of modern views, *e.g.*, in Erigena, in Duns Scotus, etc.

Neither in psychology nor in philosophy are there any real anticipations; Aristotle's psychology may have had a direct influence when it was really studied; but this it very seldom was. The apparent similarity of so many views—*e.g.*, those on the activity of the soul, the importance of feeling, etc., to those of Aristotle, is irrelevant in a genuine history; the formula may be the same, but almost certainly what is meant in each age, by such a term as "activity" is something quite specific, and different from Aristotle's meaning. As an example—of Albertus and Aquinas it is said (II., p. 116), "We have here already the cleft between mind and matter which Descartes will be found developing later; we have, too, the Cartesian principle of union through God; and, at the same time there is more than one suggestion of that later Aristotelianism which Kant so ingeniously elaborated". I am not sure that Mr. Brett appreciates the extraordinary skill and delicacy with which the great scholastics were working out, for their own immediate needs in the first instance, but also for all time to come, a language which would be adequate to express the deeper aspects of the soul to which men were slowly penetrating. No doubt there is an attractiveness in the discovery that something very like Wundt's theory of Apperception, and James' fringe of consciousness, appears in Duns Scotus, or that Associationism dawned for a brief and ineffective moment in the minds of Witelo and Roger Bacon, and that subconscious factors in mind were appealed to again and again, from Augustine onwards, before the theory reached its height in modern psychology. But it does not really explain how each writer came to hold his particular form of the theory, and at one particular period in history.

In the third volume (p. 130) Mr. Brett discusses the idea of a "psychological" account of writers and their systems—"Whether that means the consequent rejection of all such systems, as exploded fictions, is quite another question. To give a psychological explanation of a course of thought is not the same thing as proving it a form of madness." Probably, if it could be done, a psychological account of systems would really give the most satisfactory history, taking into consideration both the tradition and the social environment of the writers. The views held by psychologists about the nature and structure of the mind, its relation to the brain, etc., have, down to our own times, been decided by their view of life and its meaning, their philosophy. "It is an open question whether a psychologist can be an idealist or a realist. He should perhaps be simply a psychologist. But apart from collectors of details and writers of monographs, history has failed to produce a psychologist who was not a philosopher of some kind: and it is notorious that a rejection of all

metaphysics is the most metaphysical of positions" (III., p. 147, 148). "All through the centuries thought has been observed trailing a cloud of speculation—and here, in the middle of the nineteenth century, we find the same problems that troubled Plato still unsolved, and a mind that embraces Platonism and Atomism [Fechner] repeating again the lost formulæ that should exorcise the mystery" (p. 129).

Accordingly Mr. Brett's discussions of the psychologists are rarely other than philosophical. On the purely experimental psychology of recent years he touches in passing, as in discussing Fechner and Wundt, Ebbinghaus, "the Würzburg School," but even in these it is the underlying questions, the relation of mind and body, the analysis of the thought-process, etc., that interest him, rather than the methods and detailed results. (This gap is filled, however, by Klemm's useful history.) The theory of Vision—colour-sense, perception of form, localisation—is taken up more thoroughly, from the interesting account of Alhazen (II., 59 to 63) onwards to Descartes, Johannes Müller, Helmholtz, Lotze, etc. Perhaps Mr. Brett's interest in vision and its psychology leads him rather to neglect Stumpf and G. E. Müller, among modern psychologists; their importance is greater than the relative space he allows them suggests.

Of the moderns, Lotze, Ward, and Stout are evidently recognised as satisfying Mr. Brett's own psychological ideals; Lotze, because with him "the high tide of intellectualism has already turned; feeling is given a prominent and significant place in the system," and the value alike of physiology to psychology and of psychology to physiology is recognised; Dr. Ward for his theory of psychic activity—"Ward broke new ground on one fundamental point—the idea that life and growth belong to the mind as truly as they belong to the body. The total impression is that of a process which must be described piecemeal, but takes place always as a whole; it is an impression of organic unity, an impression of vital impulse ever extending its unity over a greater variety and complexity of action. To grasp this idea is more important than disputing details, for out of the idea comes inspiration" (III., p. 239).

The whole work is remarkably fresh, vivid and attractively written; psychologists will be grateful that a work of this kind has at last been done, and done by one who has the scholarship, science, and philosophical training that are requisite for the task.

At the end of each volume there are useful references to the literature. One or two errors have slipped into the text; on p. 279 (Vol. II.), "Gray" should be Gay—the clergyman who put Hartley upon the way of Association. On p. 278, text and note seem to have some confusion with regard to Hartley's work. The German translation and notes seem to have been first published in 1772-1773; these German notes to have been translated and added to the second edition of Hartley's complete work, 1791; the fourth edition, 1801, had Priestley's additions instead of the German ones, and the fifth edition, 1810, had no additions.

J. L. M.

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H. Price, *Cold Light on Spiritualistic "Phenomena"* (reprinted from the Journal of the S.P.R., May, 1922), London, Kegan Paul, Trench, Trubner & Co. Ltd., 1922, pp. 15.

VIII.—PHILOSOPHICAL PERIODICALS.

The British Journal of Psychology. Vol. xii., Part 2. October, 1921. **W. H. R. Rivers.** 'Affect in the Dream.' [The author accepts the view that dreams are the attempt to solve in sleep the conflicts of waking life and points out that, since in sleep only the earlier levels of mental processes are functioning, the solution of the conflict must take on an infantile aspect. Transformation in dreams is thus a form of regression and is not due to the work of a "censor". Its effect is to lessen the affective aspect of the conflict. When there is no transformation there is affect, pleasant or unpleasant according to whether the strongest wishes of the dreamer are fulfilled or not. The intensity of affect is itself a mark of the infantile nature of the dream.] **P. B. Ballard.** 'The Limit of the growth of Intelligence.' [Describes the application of a series of "absurdity" tests among pupils and students from eleven to twenty-two years of age or more. No greater superiority in these tests is shown by pupils over sixteen years, from which it is inferred that "intelligence" ceases to grow about the age of sixteen or grows at only a very slow rate.] **B. Muscio.** 'Feeling-tone in Industry.' [Reaffirms the importance of feelings of fatigue as determinants of output, though they may not be correlated very highly with output in experimental work done under highest pressure. Reports as to fatigue at different times of the day by twenty individual students and fifteen typists show rough correspondence between the degree of freshness and normal industrial output. "It is strongly suggested that the deterioration of output towards the end of a spell of work is a direct response to the painful feeling-tone of these 'feelings' of fatigue." These feelings may thus play a far greater part in normal work than current fatigue investigation, engrossed with physiological problems, recognises. And it is suggested that "feelings" generally—and not merely "fatigue" feelings—"should be accorded more notice in connexion with various sides of industrial life than they at present receive".] **T. H. Pear.** 'The Intellectual Respectability of Muscular Skill.' [Discusses the value of kinæsthesis, its loose connexion with language, and the marked degree of individual variations in respect to kinæsthetic imagery. He enquires into the possibility of a "language of kinæsthesis" emphasising what its value would be in motion study. Other questions discussed are the 'intolerance' of persons with predominant kinds of imagery, the utility of visual imagery in learning muscular co-ordinations, and the improvement of the social and intellectual status of kinæsthetic knowledge.] Other articles in this number are as follows: **H. Hartridge.** 'A Vindication of the Resonance Theory of Audition,' II. **A. G. Sillitoe.** 'A Portable Choice Reaction Time Apparatus' (with diagram). **Charles Fox.** 'A New Method of Marking Group Tests.' **Charles Fox.** Critical notice of J. C. Maxwell Garnett's 'Education and World Citizenship: an essay towards a science of Education'.

Logos. Anno iv., Fasc. 4. October-December, 1921. **C. Schuwer.** *La philosophie et les systèmes.* [The author's main thesis is that the true *philosophia perennis* is the gradual creation of time which integrates the thought contained in the various "systems" of individual thinkers into a permanent and coherent whole.] **A. Chiappelli.** *Dinamica spirituale.* [A good essay on the necessity of a genuine Theism as the only way of reconciling the unity of aim and tendency in the known world with the plurality of finite subjects. But why does the author think it necessary to deny the reality of the distinction between good and evil? To argue that the tendency of the world is to the elimination of evil one need not deny that, as things are, evil is very real and that it is just because it is so real that it needs to be overcome and cannot be simply ignored. But it is gratifying to see that the fancy of a "finite God" is absolutely rejected.] **E. di Carlo.** *Teoria filosofica del diritto.* [Why are not all "events," but only human actions, the "field" of law? Because human actions are not mere events, but acts, "in immediate correlation with the volitional activity of a human subject". What, then, are the specific characters of an *act?* The all-important point is that "imputable acts" issue from *deliberation.* Hence Del Vecchio's definition, "an act is the mode of being of a subject in so far as it has its *principium* in the subject," is too wide. It would include mere physical reflexes and sense-reflexes. Mere thoughts, again, cannot come under the cognizance of the law.] **N. Abbagnano.** *Il realismo critico in America.* [A brief exposition of the main thesis of the "six realists," mainly directed to the point that, on their theory, the actual existence, the "that" of the object known, is asserted on the strength of an extra-logical instinct.] **W. Riley.** *American Realism and Its Critics.* i. [A severe criticism of Messrs. Sellars and Spaulding, which suggests that not only do they not know their own meaning, but that their doctrines really have no coherent meaning. I could wish there had been a marked protest against the ignorant attempt to shelter what seems to be only a "neutral monism," obscurely expressed, under the name of Plato, an authority with whom the "neo-realists" in question do not seem to have very close acquaintance. And I do not see that the "traditional account of consciousness," whatever it is, is "done for" by simply calling consciousness an "awareness" or a "dimension".] **A. Aliotta.** *Il razionalismo e le verità matematiche.* [A. maintains that the method of pure mathematics is throughout radically "experimental". It is all a matter of making hypotheses and verifying them. The "*a-priorists*," from Plato to Russell, are regarded as refuted by the considerations (*a*) that different geometries are equally legitimate, (*b*) that the choice of indefinables and indemonstrables is, in part, arbitrary, (*c*) that the demonstrations of geometry only prove logical implications. But when all this is admitted, is "Platonism" really disposed of? As the *Phaedo* shows, Plato's doctrine was not really what A. calls it, a "crude intuitionalism". Granted that all the geometer proves is that *his* postulates logically imply his conclusions, are the laws of logical implication themselves arrived at by a previous experimentation? The unresolved difficulty, to my mind, is that in genuine experimentation you have always something by comparison with which you may "verify" your hypothesis; in pure mathematics, there seems to be nothing outside the body of deductions from your postulates which could serve to "verify" the postulates. The body of deduced consequences has to be at once the inference from the hypothesis and the evidence by comparison with which the hypothesis is verified.] **G. Della Valle.** *L'apriorità dell' intuizione e l'universalità dei Valori.* ["Values" arise from an intuition which consists in the application *a priori* of a specific category of value to a mental state. Value

—the category—is always one and identical; differences of quality between values are due to differences of the extent to which the category is applied. Knowledge is a special case of valuation.] Reviews.

Rivista di Filosofia Neo-Scolastica. Anno xiii., Fasc. v. September-October, 1921. **Editorial.** [Explains the inauguration at Milan on the preceding 7th December of the Catholic University of the Sacred Heart, of which this Review now becomes the official organ, and the organisation in particular of the department of Philosophy. The projected course seems a very sound and thorough one; the present writer wishes the new University much success in its work.] **G. Cattaneo.** *Roberto Ardigò nei ricordi d'uno dei suoi primi discepoli all' Università di Padova.* [Reminiscences of the famous ex-priest and Positivist by an early pupil, a student at Padua when Ardigò was appointed there in 1881.] **G. Sestili.** *La Filosofia di S. Bonaventura.* [A careful study of S. Bonaventura's most characteristic doctrines of (*a*) the aim of philosophy, (*b*) created things, (*c*) knowledge. Well-documented; I confess the defence of the "ontological argument" seems to me to evade the real difficulty. The author seems to me to establish only the hypothetical proposition, "if there is a God, He exists," or "if God is known, He is known as existing". The persistent objector would probably say, like Hobbes, that God may be imagined or thought of, but is not *known* at all.] **C. Baeumker.** *Pietro d'Ibernia.* [Continuation of the article begun in Fasc. ii. Peter's disputation before Manfred shows no Augustinian influence. It is wholly a product of the Aristotelian movement; the author's connexions are with medicine and natural science, not with theology, and his guide to Aristotle's meaning is not Avicenna but the less Neo-Platonic Averroes. His Aristotelianism may probably have been a formative influence in the thought of his disciple St. Thomas. The Latin text of the disputation is given.] Reviews. Anno xiii., Fasc. vi. November-December, 1921. **E. Ciafardini.** *L'immortalità dell' anima in Cicerone.* [A discussion of Cicero's first *Tusculan*, marked by sympathetic understanding of Cicero's personality. But the Platonic proof that the "motion which moves itself" is everlasting is much more fully expounded in the *Laws*, to which no reference is made, than in the *Phaedrus*, and a study of Prof. Burnet's edition of the *Phaedo* might lead Mr. Ciafardini to reconsider his remarks about the historical character of the picture of Socrates in the *Phaedo*.] **P. Rotta.** *Del Platonismo in Aristotele.* [Concluded from the issue for January-February, 1921. The author rightly dwells on the point that the opposition between Platonism and Aristotelianism is far from being so sharp as the tone of Aristotle's own criticisms would suggest. His view is that Aristotle habitually forgets that Plato's doctrine is primarily epistemological whereas his own is cosmological. I am not sure that this distinction is really valid. To understand Plato's thought we should surely start rather from the notices of his teaching furnished by Aristotle himself and other immediate pupils, and from works where Plato is not hampered by the necessity of keeping up the dramatic fiction that we are listening to a conversation held in the fifth century, that is from the *Laws*, the *Epinomis*, the *Epistles*, than from the *Philebus* and *Timæus*, where we are dealing with the ideas of fifth-century Pythagoreanism. The *Philebus* may serve as an *instantia crucis*. We know from Aristotle that the Pythagorean antithesis of Infinite and Limit was not accepted, in that form, by Plato, and that this was one of the two points which, according to Aristotle, made the difference between the two philosophies. Yet all through the *Philebus* Plato works, obviously from a desire for dramatic verisimilitude, with the Pythagorean categories. Robin, to my mind, is obviously beginning at the right end in attempting

to get at Plato's thought by asking how it was understood by such men as Aristotle, Xenocrates, Speusippus. Now the *Laws* shows that, so far from the conception of God playing a subordinate part in Plato's thought, it was this concept, and the use of it to solve the cosmological problem, which was central in Platonism. If I might make a suggestion, I could wish that a neo-scholastic would attempt to discuss the question whether the real *perennis philosophia* is not just the Platonism in Aristotle, and whether everything in Aristotle which is not really in Plato is more than an obstinate survival of "naturalistic" prejudices due to early education in Ionian cosmology and biology. Mr. Rotta has naturally a great deal to say of the so-called *νοῦς ποιητικός*. Is not the appearance of this disturbing "supernatural" entity at the end of an otherwise naturalistic work on psychology just an example of Platonism imperfectly amalgamated with Ionian naturalism?] **L. Stefanini.** *Morte e vita nel pensiero di G. V. Gravina.* [Concluded from an. xii., fasc. vi.] Notes and discussions. *Lo stato attuale della filosofia tedesca.* [A good general survey. But why cannot the champions of the *philosophia perennis* speak of Kant fairly and dispassionately? We need be no Kantian to be alive to the facts that Kant was a considerable thinker and that the version of his thought given by the "idealist" neo-Kantians is a travesty. Why must Kant be the scape-goat for the sins of men whom he would have been the first to disown? And—it is a small matter but significant—Kant never wrote a work on *Religion within the limits of Pure Reason*. What he did write of was *Religion within the limits of Mere Reason*, a very different matter.] Reviews.

Rivista di Filosofia. Anno xiii., No. 3. July-September, 1921. **P. Carabellese.** *Che cosa è la Filosofia?* [The discussion starts with the views of Gentile and Croce, the latter of whom really abolishes philosophy as such by making it identical with its own history. The writer's own view is that philosophy is wrongly described as "knowledge"; it should be more precisely called "theory". It is theory with the universal for its object, not the so-called "concrete" universal, but the abstract universals of which all concretes are the synthesis. Such universals are the limits of the concrete and are never absolutely reached. Philosophy, similarly, is always in the making, never made.] **L. Vivante.** *Dell' intelligenza nell' espressione.* [The distinctive characteristic of poetical utterance is that the "matter," words, rhythm, rhyme is not a mere external vehicle for an already formed thought; it suggests and provokes the thought. Of course this is true in a lesser degree of good prose.] **G. Semprini.** *Sul misticismo.* [Mysticism not "pathological" nor yet identical with religion.] Reviews, etc. Anno xiii., No. 4, October-December, 1921. **C. Guastella.** *Il concetto fenomenistico dell' identità del me e dell' incosciente.* [An extract from the author's *Ragione del fenomenismo.*] **G. Montesano.** *Psicologia del riso e del comico.* [Numerous theories of the "laughable" or "comic," from Plato to Freud, are reviewed, and all found inadequate. The author's own view is that laughter, a sudden explosion by which energy is diverted into new muscular channels, is valuable as giving relief from muscular fatigue. The source of the sudden explosion can be explained psychologically by starting with the simple case where we amuse ourselves by "playing a trick" on some one. What causes the explosion and gives the relief, and so causes the laughter when we "drop the mask," is the contrast between the attitude we pretend to be keeping up and the very different one we are shortly to assume. This gives us a clue to the character of the "comic" situation in general. Here the whole situation may be a feigned one, but the point of it lies in sympathetic appreciation of the relief which comes from a momentary throwing off of the inhibitions

conventionally imposed on our social behaviour and of the fatigue of keeping them up. The theory is cleverly worked out with a good deal of detail, but one may perhaps suspect that it is a little too simple. I would suggest that the discussion of "laughter" should be kept carefully apart from that of the "comic". There is much laughter which is not provoked by the "comic". Laughter may be an expression of pain, of anger, of sheer affection. Nor is this remarkable when we remember the diffused character of the bodily expressions of emotion. And is it clear that the proposed explanation of the "comic" itself explains, *e.g.*, why some of us find Henry James's *Ambassadors* a masterpiece of the comic art? But the article at any rate deserves careful study.] **E. di Carlo.** *Tre lettere inedite del P. Luigi Taparelli D'Azeglio à V. Gioberti.* Reviews, etc.

Revue Néo-Scolastique de Philosophie. xxive Année. No. 93. February, 1922. **C. H. Grandgent.** *Dante, Scholar and Philosopher.* [A study by the Professor of Romance literature at Harvard]. **D. Lottin.** *Les éléments de la moralité des actes dans les écoles avant Saint Thomas.* [On the answers given by earlier schoolmen to the question whether the morality of an act depends solely on the agent's intention. A summary of the views of Abelard, Hugh of St. Victor, Peter Lombard, Albert the Great, Alexander of Hales.] **D. Nys.** *L'espace réel ou l'univers actuel est-il infini?* [The arguments for and against the possibility of the actual infinite are alike inconclusive. The attempts of modern times to prove either the finitude or the infinitude of the universe by appeal to physics or astronomy (Olbers, Arrhénius, Wundt and others) are equally inconclusive. The author's own view is that from consideration of what would happen if the Creator gave a body "at the boundary" of the universe an initial velocity and at the same time deprived it of gravity we are driven to accept either a "real infinite space," *i.e.*, I suppose, an infinite plurality of "stellar systems," or the infinite void.] **R. Kremer.** *La Connaissance Historique, son objet et sa nature.* [An excellent and careful essay on the impossibility of regarding history as a science in the same sense as either the "exact" or the "positive" sciences. The root of the difficulty is that history is concerned with the concrete past, the *devenir de l'humanité.*] Reviews, etc.

Journal of Philosophy. xix. (1922), 6. **G. A. Tawney** and **E. L. Talbot.** 'Democracy and Morals.' [A defence of Dewey's social philosophy against the charge of 'radicalism' which is so deadly just now to American professors.] **J. E. Turner.** 'Dr. A. N. Whitehead's Scientific Realism.' [Does not "see anything which prevents realism from taking its place within a system of absolute idealism fuller and deeper than any yet conceived"!] **G. H. Mead.** 'A Behavioristic Account of the Significant Symbol.' ["Significance belongs to things in their relation and to individuals. It does not lie in mental processes which are enclosed within individuals."] xix., 7. **S. P. Lamprecht.** 'The Metaphysical Status of Sensations.' [Seeks salvation in "Plato's contention that in vision the eye becomes a seeing eye, and the object becomes a white object".] **J. L. Mursell.** 'Truth as Correspondence: A Redefinition.' [To "avoid the well-known dialectical difficulties of the theory of error". "Little is known as yet of the means by which the nervous system makes selections from and performs integrations upon the vast number of stimuli which come in all the time. But psychology and neurology are decidedly justified in assuming that this enormously complex mechanism performs its task somehow. . . ." Thus "every judgment is uniquely related to its object by virtue of the fact that it is a response to which the object in question has been or is the stimulus" and it is "true when it is the

response of a normal organism to a given stimulus".] **T. de Laguna.** 'The Complex Dilemma: A Rejoinder.' [To A. P. Brogan, xviii., 21.] xix., 8. **R. Demos.** 'Romanticism *vs.* the Worship of Facts.' [The romantic seeks to escape from the actual into the real, and "the actual world is only one of the infinite possible worlds"—in which "existence is an evil and creation the original sin".] **H. A. Wadman.** 'Relativity, Old and New.' [Criticises Turner in xix., 6.] **W. R. Wells.** 'An Historical Anticipation of John Fiske's Theory regarding the Value of Infancy.' [By 'V. F.' in *The Friend's Annual* for 1834.] **H. H. Parkhurst** reports on the 21st Annual Meeting of the American Philosophical Association. xix. 9. **G. P. Conger.** 'The Implicit Duality of Thinking.' [Deduces it from the selectiveness of perception and relation of every object to its background, and declares it "a metaphysical principle of prime importance".] **A. A. Merrill.** 'The *t* of Physics.' ["Is the fourth dimension of experience lived as real time, but treated mathematically as if it were space," as if it could = 0. But "we live in real time and not in the *t* of physics".] **W. T. Bush** reports on the Paris Philosophical Congress at Christmas, 1921.

International Journal of Ethics. xxxii., 2. January, 1922. **Arthur Henderson.** 'The Character and Policy of the British Labour Party.' [Claims that basis of the party is intellectual, not economic, though its members are naturally largely also members of Trades Unions; states that its aim is to control government and that its policy will be directed towards greater efficiency of industry and agriculture for public service, reduction of unproductive expenditure, diminution of power of wealth in politics and remodelling of diplomatic machinery.] **Benjamin Ives Gilman.** 'What is Liberty?' [Formulates definition that liberty is acting one's part in the resultant will of all whom one's purpose concerns, develops implications that each should give the same weight to motives, adequately imagined, of others as to those he feels, and summarises that liberty is the sum of equality and fraternity.] **C. J. Cadoux.** 'The Individual Factor in Social Progress.' [A defence of the view that though society may not be ready for the universal application of a moral ideal the individual accepting it should act according to it and propagate his views; applies to problems of divorce, vegetarianism, slavery and war.] **A. B. Wolfe.** 'Emotion, Blame, and the Scientific Attitude in Relation to Radical Leadership.' [Holds that attitude based upon desire for thoroughgoing innovations is aroused chiefly by attention to desires thwarted by social maladjustments and leads naturally to resentment, anger and personal blame, that these cannot develop a policy; discusses characteristics of efficient leaders on the basis of extent to which conduct is determined by sensibility, emotion, sentiment, or impersonal rational intelligence, and suggests need for scientific research into nature of obstructions to progress.] **Benjamin Ginzburg.** 'Hypocrisy as a Pathological Symptom.' [Expands the thesis that hypocrisy is inevitable in any society in which all members do not develop morally at the same rate from the same level.] **Alfred H. Lloyd.** 'Leadership and Progress.' [Assumes that progress proceeds in periods, each a new life of the people, summarises conditions precedent to birth of such a new life and characteristics of leaders in relation to organised society, and maintains that they partake of leadership in so far as they are individuals and interpret life.] **Rupert Clendon Lodge.** 'Plato and the Moral Standard.' [Concludes examination of Platonic standards; maintains that each of proposed standards means that moral conduct is organised and directed by insight into the genuine structure of reality.]

IX.—NOTE.

IMAGINISM.

Reflexion on Mr. Fawcett's article in the April number of Mind, and reconsideration of his general point of view, assisted by a good deal of correspondence with him, have convinced me that some injustice was done to his work in the review of *Divine Imagining* that I wrote more than a year ago. It is my intention to return to the subject later; but, in the meantime, a few words appear to be called for.

The chief significance of Mr. Fawcett's work may perhaps be best brought out by a reference to that of Prof. Alexander. In *Space, Time and Deity*, we find an elaborate account of almost every important feature of our universe; and an attempt is made to deduce everything—even the most fundamental categories—from the general structure of Space-Time. It is a highly speculative adventure, and can hardly be expected to carry complete conviction to every mind; but to a considerable extent it appears to be successful—certainly at least not an obvious failure. But there is one thing of which he is confessedly not able to give any satisfactory account—*viz.*, the particular *qualities* of things, the appearances of colour, sound, smell, etc. Now, I understand Mr. Fawcett's main contention to be that particular qualities can be best understood as the creations of a Divine Imagining—a view that recalls the work of the Demiurge described in Plato's *Timaeus*, though Mr. Fawcett's view differs from that in several particulars. Deity, from this point of view, instead of coming at the end of the process of Creative Evolution (as with Prof. Alexander) has to be thought of as present and active at the beginning; though this does not preclude the possibility of a development in the Divine towards a higher perfection—as suggested, for instance, in the recent Gifford Lectures by Sir Henry Jones.

If this view is adopted, it would seem that qualities, as distinguished from what Prof. Alexander describes as the 'categorial' aspects of the Cosmos, would have to be regarded as being, in a sense, *arbitrary*—as contrasted, at least, with the strict *ἀνάγκη* that is found in the categorial framework. It is in this sense that I understand Mr. Fawcett to speak of Chance; just as Hegel appeared to recognise an element of 'contingency' in the created universe. A view of this kind seems to me perfectly intelligible, though the particular expression of it may be open to question. Indeed, it seems to me the most intelligible account of the world-process that has ever, so far as I am aware, been put forward. Hence I now regard Mr. Fawcett's work as considerably more important than I at first perceived. It seems at least, if nothing else, to be the necessary supplement to such an account as that of Prof. Alexander.

It may be noted that the theory, thus interpreted, appears to involve that there is a real beginning of the time process, though not necessarily any end. There seems to be no insuperable difficulty in accepting this view, though it calls for a good deal of discussion. It does not preclude the possibility of a return of the time process upon itself, such as Mr. Fawcett appears to maintain.

I still find many things in Mr. Fawcett's book that seem highly speculative; and I am not quite clear as to his grounds for affirming some of them; but I know of no definite grounds for denying most of them. His idea of creation out of nothing seems to call for more explanation. But, so far as I understand his main positions, they seem at least plausible and enlightening. The acceptance of them would involve some modifications in opinions that I have previously ventured to suggest, but not so much change as might at first appear necessary. Of this, however, more hereafter.

J. S. Mackenzie.

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